

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—THE PERCEPTION OF SPACE. (III.)¹

By Professor WILLIAM JAMES.

4. *Visual Space.*

It is when we come to analyse minutely the conditions of *visual* perception that difficulties arise which have made psychologists appeal to new and *quasi*-mythical mental powers. But I firmly believe that even here exact investigation will yield the same verdict as in the cases studied hitherto. This subject will close our survey of the facts, and if it give the result I foretell, we shall be in the best of positions for a few final pages of critically historical review.

If a common person is asked how he is enabled to see things as they are, he will simply reply—by opening his eyes and looking. This innocent answer has, however, long since been impossible for science. There are various paradoxes and irregularities about *what* we appear to perceive under seemingly identical optical conditions, which immediately raise questions. To say nothing now of the time-honoured conundrums of why we see upright with an inverted retinal picture, and why we do not see double; and to leave aside the whole field of colour-contrasts and

¹ Continued from MIND Nos. 45, 46.

ambiguities, as not directly relevant to the space-problem; it is certain that the same retinal image makes us see quite differently-sized and differently-shaped objects at different times, and it is equally certain that the same ocular movement varies in its perceptive import. It ought to be possible, were the act of perception completely and *simply* intelligible, to assign for every distinct judgment of size, shape and position, a distinct optical modification of some kind as its occasion. And the connexion between the two ought to be so constant that, given the same modification, we should always have the same judgment. But if we study the facts closely we soon find no such constant connexion between either judgment and retinal modification, or judgment and muscular modification, to exist. The judgment seems to result from the combination of retinal, muscular and intellectual factors with each other; and any one of them may occasionally overpower the rest in a way which seems to leave the matter subject to no simple law.

The scientific study of the subject, if we omit Descartes, began with Berkeley, and the particular perception he analysed in his *New Theory of Vision* was that of distance or depth. Starting with the physical assumption that a difference in the distance of a point can make no difference in the nature of its retinal image, since "distance being a line directed endwise to the eye, it projects only one point in the fund of the eye—which point remains invariably the same, whether the distance be longer or shorter," he concluded that distance could not possibly be a visual sensation, but must be an intellectual "suggestion" from "custom" of some non-visual experience. According to Berkeley this experience was tactile. His whole treatment of the subject was excessively vague—no shame to him, as a breaker of fresh ground—but, as it has been adopted and enthusiastically hugged in all its vagueness by nearly the whole line of British psychologists who have succeeded him, it will be well for us to begin our study of vision by refuting his notion that depth cannot possibly be perceived in terms of purely visual feeling.

(a) *The Third Dimension.*

Berkeleyans unanimously assume that no retinal sensation can primitively be voluminous; if it be extended at all (which they are barely disposed to admit), it can be extended only in the first two dimensions, not in the third. At starting we have denied this, and adduced facts to show that all sensations are voluminous in three dimensions. It is

impossible to lie on one's back on a hill, to let the empty abyss of blue fill one's whole visual field, and to sink deeper and deeper into the merely sensational mode of consciousness regarding it, without feeling that an indeterminate, palpitating, circling depth is as indefeasibly one of its attributes as its breadth. We may artificially exaggerate this sensation of depth. Rise and look from the hill-top at the distant view; represent to yourself as vividly as possible the distance of the uttermost horizon; and then *with inverted head* look at the same. There will be a startling increase in the perspective, a most sensible recession of the maximum distance; and as you raise the head you can actually see the horizon-line again draw near.¹

Mind, I say nothing as yet about our estimate of the 'real' amount of this depth or distance. I only want to confirm its existence as a natural and inevitable optical consort of the two other optical dimensions. The field of view is always a *volume*-unit. Whatever be supposed to be its absolute and 'real' size, the relative sizes of its dimensions are functions of each other. Indeed, it happens perhaps most often that the breadth- and height-feeling take their absolute measure from the depth-feeling. If we plunge our head into a wash-basin, the felt nearness of the bottom makes us feel the lateral expanse to be small. If, on the contrary, we are on a mountain-top, the distance of the horizon carries with it in our judgment a proportionate height and length in the mountain-chains that bound it to our view. But as aforesaid, let us not consider the question

¹ What may be the physiological process connected with this increased sensation of depth, is hard to discover. It seems to have nothing to do with the parts of the retina affected, since the mere inversion of the picture (by mirrors, reflecting prisms, &c.), without inverting the head, does not seem to bring it about; nothing with sympathetic axial rotation of the eyes, which might enhance the perspective through exaggerated disparity of the two retinal images (see J. J. Müller, "Raddrehung u. Tiefendimension," *Sächs. Acad. Berichte*, 1875, page 125), for one-eyed persons get it as strongly as those with two eyes. I cannot find it to be connected with any alteration in the pupil or with any ascertainable strain in the muscles of the eye, sympathising with those of the body. The exaggeration of distance is even greater when we throw the head over backwards and contract our superior recti in getting the view, than when we bend forward and contract the inferior recti. Making the eyes diverge slightly by weak prismatic glasses has no such effect. To me, and to all whom I have asked to repeat the observation, the result is so marked that I do not well understand how such an observer as Helmholtz, who has carefully examined vision with inverted head can have overlooked it. (See his *Phys. Optik*, pp. 433, 723, 728, 772.) I cannot help thinking that anyone who can explain the exaggeration of the depth-sensation in this case, will at the same time throw much light on its normal constitution.

of absolute size now,—it must later be taken up in a thorough way. Let us confine ourselves to the way in which the three dimensions seen get their values fixed, *relatively to each other*.

Reid, in his *Inquiry into the Human Mind*, has a section "Of the Geometry of Visibles," in which he assumes to trace what the perceptions would be of a race of 'Idomenians' reduced to the sole sense of sight. Agreeing with Berkeley that sight alone can give no knowledge of the third dimension, he humorously deduces various ingenious absurdities in their interpretations of the material appearances before their eyes.

Now I firmly believe, on the contrary, that one of Reid's Idomenians would frame precisely the same conception of the external world that we do, if he had our intellectual powers.¹ Even were his very eyeballs fixed and not movable like ours, that would only retard, not frustrate, his education. For the same object, by alternately covering in its lateral movements different parts of his retina, would determine the mutual equivalencies of the first two dimensions of the field of view; and by exciting the physiological cause of his perception of depth in various degrees, it would establish a scale of equivalency between the first two and the third.

First of all, one of the sensations given by the object is chosen to represent its 'real' size and shape, in accordance with the principles laid down on pp. 191 and 193. One sensation measures the 'thing' present, and the 'thing' then measures the other sensations. The peripheral parts of the retina are equated with the central by receiving the image of the same object. This needs no elucidation in case the object does not change its distance or its front. But suppose, to take a more complicated case, that the object is a stick, seen first in its whole length, and then rotated round one of its ends; let this fixed end be the one near the eye. In this movement the stick's image will grow progressively shorter; its farther end will appear less and less widely separated from the fixed near end; soon it will be screened by it, and then re-appear on the opposite side, and finally on that side resume its original length. Suppose this movement to become a familiar experience;

¹ "In *Froriep's Notizen*, 1838, July, No. 133, is to be found a detailed account, with a picture, of an Esthonian girl, Eva Lauk, then 14 years old, born with neither arms nor legs, which concludes with the following words: 'According to the mother, her intellect developed quite as fast as that of her brother and sisters; in particular, she came as quickly to a right judgment of the size and distance of visible objects, although, of course, she had no use of hands.'" (Schopenhauer, *Welt als Wille*, ii. 44.)

the mind will presumably react upon it after its usual fashion (which is that of unifying all data which it is in any way possible to unify), and prefer to consider it the movement of a constant object rather than the transformation of a fluctuating one. Now, the *sensation of depth* it receives is awakened more by the far than by the near end of the object. But how much depth? What shall measure its amount? Why, at the moment the far end is ready to be eclipsed, the difference of its distance from the near end's distance must be judged equal to the stick's whole length; but that length has already been judged equal to a certain optical sensation of breadth. Thus amounts of the visual depth-feeling become signs of fixed amounts of the visual breadth-feeling. The measurement of distance is, as Berkeley truly said, a result of suggestion and experience. But visual experience alone is adequate to produce it, and this he erroneously denied.

Suppose a colonel in front of his regiment at dress-parade, and suppose he walks at right angles towards the midmost man of the line; the line will visibly shrink as he advances, and at the same time the colonel will perceive his distance from the extreme man at each end of the line to increase relatively to his distance from the midmost man whom he approaches. When he finally touches this midmost man, his distance from the ends is felt by him to be at its maximum, although the line as a whole subtends hardly any retinal angle. *What* distance shall he judge it to be? Why, half the length of the regiment as it was originally seen, of course; but this length was a moment ago a retinal object spread out laterally before his sight. He has merely equated a retinal depth-feeling with a retinal breadth-feeling. If the regiment moved, and the colonel stood still, the result would be the same. In such ways as these, a creature endowed with eyes alone could hardly fail of measuring out all three dimensions of the space he inhabited. And we ourselves, I think, although we *may* often 'realise' distance in locomotor terms (as Berkeley says we must always do), yet do so no less often in terms of our retinal map, and always in this way the more spontaneously. Were this not so, the three dimensions could not possibly feel to us as homogeneous as they do, nor as commensurable *inter se*.

Let us, then, admit distance to be at least as genuinely optical a content of consciousness as either height or breadth. The question immediately returns, Can any of them be said in any strictness to be optical *sensations*? We have contended all along for the affirmative reply to this question, but must

now cope with difficulties greater than any that have assailed us hitherto.

A sensation is presumably the mental affection that follows most immediately upon the stimulation of the sense-tract. Its antecedent is directly physical, no psychic links, no acts of memory, inference or association intervening. Accordingly, if we suppose the nexus between neural process in the sense-organ on the one hand, and conscious affection on the other, to be by nature uniform, *the same process ought always to give the same sensation*; and conversely, *if what seems to be a sensation varies whilst the process in the sense-organ remains unchanged, the reason is presumably that it is really not a sensation but a higher mental product, whereof the variations depend on events occurring in other parts of the nervous system than the sense-organ in question, probably higher cerebral centres.*

Now the size of the field of view varies enormously in all three dimensions, without our being able to assign with any definiteness the process in the visual tract on which the variation depends. We just saw how impossible such assignment was in the case where turning down the head produces the enlargement. In general, the maximum feeling of depth or distance seems to take the lead in determining the apparent magnitude of the whole field, and the two other dimensions seem to follow. If, to use the former instance, I look close into a wash-basin, the lateral extent of the field shrinks proportionately to its nearness. If I look from a mountain, the things seen are vast in height and breadth, in proportion to the farness of the horizon. But when we ask what changes in the eye determine how great this maximum feeling of depth or distance (which is undoubtedly felt as a unitary vastness) shall be, we find ourselves quite unable to point to any one of them as being its absolutely regular concomitant. Convergence, accommodation, double and disparate images, differences in the parallax displacement when we move our head, faintness of tint, dimness of outline, and smallness of the retinal image of objects named and known, are all processes that have *something to do* with the perception of 'far' and of 'near'; but the effect of each and any one of them in determining such a perception at one moment, may at another moment be reversed by the presence of some other sensible quality in the object, that makes us, evidently by reminding us of past experience, judge it to be at a different distance and of another shape. If we paint the inside of a pasteboard mask like the outside, and look at it with one

eye, the accommodation- and parallax-feelings are there, but fail to make us see it hollow, as it is. Our mental knowledge of the fact that human faces are always convex, overpowers them, and we directly perceive the nose to be nearer to us than the cheek instead of farther of.

The other organic tokens of farness and nearness are proved by similar experiments (of which we shall ere long speak more in detail) to have an equally fluctuating import. They lose all their value whenever the collateral circumstances favour a strong intellectual conviction that the object presented to the gaze contradicts their verdict—cannot be either *what* or *where* they, if left to themselves, would make us perceive it to be.

Now the query immediately arises: *Can* the feelings of these processes in the eye, if they are so easily neutralised and reversed by intellectual suggestions, ever have been direct sensations of distance at all? Ought we not rather to assume, since the distances we see *in spite* of them are conclusions from past experience, that the distances we see *by means* of them are equally such conclusions? Ought we not in short to say unhesitatingly that distance must be an intellectual and not a sensible content of consciousness? and that each of these eye-feelings serves as a mere signal to awaken this content, our intellect being so framed that sometimes it notices one signal more readily and sometimes another?

Reid long ago (*Inquiry*, c. vi. sec. 17) said, "It may be taken for a general rule, that things which are produced by custom may be undone or changed by disuse or by contrary custom. On the other hand, it is a strong argument that an effect is not owing to custom, but to the constitution of nature, when a contrary custom is found neither to change nor to weaken it." More briefly, a way of seeing things that can be unlearned was presumably learned, and only what we cannot unlearn is instinctive.

This seems to be Helmholtz's view, for he confirms Reid's maxim by saying in emphatic print, "No elements in our perception can be sensational which may be overcome or reversed by factors of demonstrably experimental origin. Whatever can be overcome by suggestions of experience must be regarded as itself a product of experience and custom. If we follow this rule it will appear that only *qualities* are sensational, whilst almost all *spatial* attributes are results of habit and experience."¹

¹ *Physiol. Optik*, p. 438. Helmholtz's reservation of 'qualities' is inconsistent. Our judgments of light and colour vary as much as our judgments

This passage of Helmholtz's has obtained, it seems to me, an almost deplorable celebrity. The reader will please observe its very radical import. Not only would he, and does he, for the reasons we have just been ourselves considering, deny distance to be an optical sensation; but, extending the same method of criticism to judgments of size, shape and direction, and finding no single retinal or muscular process in the eyes to be indissolubly linked with any one of these, he goes so far as to say that all optical space-perceptions whatsoever must have an intellectual origin, and a content that no items of visual sensibility can account for.¹

As Wundt and others agree with Helmholtz here, and as their conclusions, if true, are irreconcilable with all the sensationalism which I have been teaching hitherto, it clearly devolves upon me to defend my position against this new attack. The wisest order of procedure seems this: first, Reid's and Helmholtz's principle for distinguishing between what is sensible and what is intellectual, must be disproved by showing cases of other senses than sight in which it is violated; secondly, we must review the further facts of vision to which the principle is supposed to apply (— this will be the longest segment of our task); and thirdly, it must be shown that the facts admit of another interpretation completely in accordance with the tenor of the space-theory we have ourselves defended hitherto. I think we shall, without extreme difficulty, make good all the parts of this perhaps presumptuous-sounding program.²

of size, shape and place, and ought by parity of reasoning to be called intellectual products and not sensations. In other places he does treat colour as if it were an intellectual product.

¹ It is needless at this point to consider what Helmholtz's views of the nature of the intellectual space-yielding process may be. He vacillates—we shall later see how.

² Before embarking on this new topic it will be well to shelve, once for all, the problem of what is the physiological process that underlies the distance-feeling. Since one-eyed people have it, and are only inferior to the two-eyed in measuring its gradations, it can have no exclusive connexion with the double and disparate images produced by binocular parallax. Since people with closed eyes, looking at an after-image, do not usually see it draw near or recede with varying convergence, it cannot be simply constituted by the convergence-feeling. For the same reason, the feeling of accommodation cannot be identical with the feeling of distance. The differences of apparent parallax movement between far and near objects as we move our head, cannot constitute the distance-sensation, for such differences may be easily reproduced experimentally (in the movements of visible spots against a background) without engendering any illusion of perspective. Finally, it is obvious that visible faintness, dimness and

(b) Suggested Feelings can overpower Present Feelings.

First, then, is it impossible that actual present sensations can be altered by suggestions of experience? In the case of hallucinations, we perfectly well know that the retinal image of the side of a room can be blotted out of view by an over-excitement of the cerebral sight-centres. And, as Stumpf remarks (*Ursprung der Raumvorstellung*, 210), hallucinations shade gradually into the illusions of everyday life. The filling-out of the blind spot is a permanent hallucination.

smallness are not *per se* the feeling of visible distance, however much in the case of well-known objects they may serve as signs to suggest it.

A certain maximum distance-value, however, being given to the field of view of the moment, whatever it be, the feelings that accompany the processes just enumerated, become so many *local signs* of the gradation of distances within this maximum depth. They help us to subdivide and measure it. Itself, however, is felt as a unit, a total distance-value, determining the vastness of the whole field of view, which accordingly appears as an abyss of a certain volume. And the question still persists, what neural process is it that underlies the sense of this distance-value?

Hering, who has tried to explain the gradations within it by the interaction of certain native distance-values belonging to each point of the two retinae, seems willing to admit that the *absolute* scale of the space-volume within which the natively fixed relative distances shall appear is *not* fixed, but determined each time by "experience in the widest sense of the word" (*Beiträge*, p. 344). What he calls the *Kernpunkt* of this space-volume, is the point we are momentarily fixating. The absolute scale of the whole volume depends on the absolute distance at which this *Kernpunkt* is judged to lie from the person of the looker. "By an alteration of the localisation of the *Kernpunkt*, the *inner* relations of the seen space are nowise altered; this space in its totality is as a fixed unit, so to speak, displaced with respect to the self of the looker" (p. 345). But what constitutes the localisation of the *Kernpunkt* itself at any given time, except "Experience," *i.e.*, higher cerebral and intellectual processes, involving memory, Hering does not seek to define.

Stumpf, the other sensationalist writer who has best realised the difficulties of the problem, thinks that the primitive sensation of distance must have an immediate physical antecedent, either in the shape of "an organic alteration accompanying the process of accommodation, or else given directly in the specific energy of the optic nerve." In contrast with Hering, however, he thinks that it is the *absolute* distance of the spot fixated which is thus primitively, immediately and physiologically given, and not the relative distances of other things about this spot. These, he thinks, are originally seen in what, broadly speaking, may be termed one plane with it. Whether the distance of this plane, considered as a phenomenon of our primitive sensibility, be an invariable datum, or susceptible of fluctuation, he does not, if I understand him rightly, undertake dogmatically to decide, but inclines to the former view. For him then, as for Hering, higher cerebral processes of association, under the name of "Experience," are the authors of fully one-half part of the distance-perceptions we at any given time may have.

Hering's and Stumpf's theories are reported for the English reader by Mr. Sully (in *MIND* iii., pp. 172-6). Mr. Abbott, in his *Sight and Touch*

Faces, colours, shapes, change in the twilight, according as we imagine them to represent this or that object. Motionless things appear to move under the same circumstances. The colour of the marginal field of view is seen like that of the central in the absence of any reason why we should judge it different (as in looking at the blue sky or a white wall), though a small marginal patch seen alone would be quite different. Colour is surely a sensation !

But leave the optical realm, where everything has been made doubtful. Touch is a sensation ; yet who has not felt

(pp. 96-8), gives a theory which is to me so obscure that I only refer the reader to its place, adding that it seems to make of distance a fixed function of retinal sensation as modified by focal adjustment. Besides these three authors I am ignorant of any, except Panum, who may have attempted to define distance as in any degree an immediate sensation. And with them the direct sensational share is reduced to a very small proportional part, in our completed distance-judgments.

Professor Lipps, in his singularly acute *Psychologische Studien* (pp. 69 ff.), argues, as Ferrier, in his review of Berkeley (*Philosophical Remains*, ii. 330 ff.), had argued before him, that it is *logically impossible* we should perceive the distance of anything from the eye by sight ; for a *seen* distance can only be between *seen* termini ; and one of the termini, in the case of distance from the eye, is the eye itself, which is not seen. Similarly of the distance of two points behind each other : the near one *hides* the far one, no space is seen between them. For the space between two objects to be *seen*, both must appear *beside* each other, then the space in question will be *visible*. On no other condition is its visibility possible. The conclusion is that things can properly be seen only in what Lipps calls a surface, and that our knowledge of the third dimension must needs be conceptual, not sensational or visually intuitive.

But no arguments in the world can prove a feeling which actually exists to be impossible. The feeling of depth or distance, of farness or awayness, does actually exist as a fact of our visual sensibility. All that Professor Lipps's reasonings prove concerning it is that it is not linear in its character, or in its immediacy fully homogeneous and consubstantial with the feeling of lateral distance between two seen termini ; in short, that there are *two* sorts of optical sensation, each inexplicably due to a peculiar neural process. The neural process is easily discovered, in the case of lateral extension or spread-outness, to be the number of retinal nerve-ends affected by the light ; in the case of protension or mere farness, it is more complicated and, as we have found, is still to seek. The two sensations unite in the primitive visual bigness. The measurement of their various amounts against each other obeys the general laws of all such measurements. We discover their equivalencies by means of objects, apply the same units to both, and translate them into each other so habitually that at last they get to seem to us even quite similar in kind. This final appearance of homogeneity is doubtless much facilitated by the fact that in binocular vision two points situated on the prologation of the optical axis of *one* of the eyes, so that the near one hides the far one, are by the *other* eye seen laterally apart. Each eye has in fact a foreshortened lateral view of the other's line of sight. In *The Times* for Feb. 8, 1884, is an interesting letter by J. D. Dougal, who tries to explain by this reason why two-eyed rifle shooting has such advantages over shooting with one eye closed.

the sensible quality of touch change under his hand, as sudden contact with something moist, or hairy in the dark, awoke a shock of disgust or fear which faded into calm recognition of some familiar object? Even so small a thing as a crumb of potato on the table cloth, which we pick up, thinking it a crumb of bread, feels horrible for a few moments to our fancy, and different from what it is.

Weight or muscular feeling is a sensation; yet who has not heard the anecdote of Wollaston when Sir Humphrey Davy showed him the metal sodium which he had just discovered? "Bless me, how heavy it is," said Wollaston; showing that his *idea* of what metals as a class *ought* to be, had falsified the sensation he derived from a very light substance.

Smell is a sensation; yet who does not know how a suspicious odour about the house changes immediately its character the moment we have traced it to its perhaps small and insignificant source? When we have paid the faithless plumber for pretending to mend our drains, the intellect inhibits the nose from perceiving the same unaltered odour, until, perhaps, several days go by. As regards the ventilation or heating of rooms, we are apt to feel for some time as we think we ought to feel. If we believe the ventilator is shut, we feel the room close. On discovering it open, the oppression disappears.¹

Taste is a sensation; yet there are but few people, in tasting wine, butter, oil, tea, meats, &c., who are not liable, temporarily at any rate, completely to misjudge the quality of what is in their mouth, through false expectation, or in con-

¹ An extreme instance of the power of imagination over the sense of smell is given in the following extract: "A patient called at my office one day in a state of great excitement from the effects of an offensive odour in the horse-car she had come in, and which she declared had probably emanated from some very sick person who must have been just carried in it. There could be no doubt that something had affected her seriously, for she was very pale, with nausea, difficulty in breathing, and other evidences of bodily and mental distress. I succeeded, after some difficulty and time, in quieting her, and she left, protesting that the smell was unlike anything she had ever before experienced and was something dreadful. Leaving my office soon after, it so happened that I found her at the street corner, waiting for a car: we thus entered the car together. She immediately called my attention to the same sickening odour which she had experienced in the other car, and began to be affected the same as before, when I pointed out to her that the smell was simply that which always emanates from the straw which has been in stables. She quickly recognised it as the same, when the unpleasant effects which arose while she was possessed with another perception of its character at once passed away." (C. F. Taylor, *Sensation and Pain*, p. 37; N. Y., 1882.)

sequence of some authority in such matters, standing by and dogmatically declaring the article to be different from what it is. In the matter of taste, it seems to me that most men are normally nearer to the trance-state than in respect of their other sensations. 'Suggestion' influences them more easily. The trance-subject's peculiarity is that *all* sensations are falsified and overpowered by the imagination. In all men *some* sensations are. And between the two extremes there are exemplifications of every intermediate degree.

As we approach the sense of Hearing, the conditions become even more like those of sight, and the deceptions which Reid's and Helmholtz's principle denies to be possible, abound. Everyone must recall some experience in which a sensation of sound altered its acoustic character as soon as the intellect referred it to a different source. The other day a friend was sitting in my room, when the clock, which has a rich low chime, began to strike: "Hollo!" said he, "hear that hand-organ in the garden," and was surprised at finding the real source of the sound. I had myself some years ago a very striking illusion of the sort. Sitting reading late one night, I suddenly heard a most formidable noise proceeding from the upper part of the house, which it seemed to fill. It ceased, and in a moment renewed itself. I went into the hall to listen, but it came no more. Resuming my seat in the room, however, there it was again, low, mighty, alarming, like a rising flood or the *avant-courier* of an awful gale. It came from all space. Quite startled, I again went into the hall, but it had already ceased once more. On returning a second time to the room, I discovered that it was nothing but the breathing of a little Scotch terrier which lay asleep on the floor. The noteworthy thing is that as soon as I recognised what it was, I was compelled to think it a different sound, and could not then *hear* it as I had heard it a moment before.¹

¹ In an anecdote given by M. Delboeuf to prove a different point, this was probably also the case, though it is not so stated. "The illustrious P. J. van Beneden, senior, was walking one evening with a friend along a woody hill near Chaudfontaine. 'Don't you hear,' said the friend, 'the noise of a hunt on the mountain?' M. van Beneden listens and distinguishes in fact the giving-tongue of the dogs. They listen some time, expecting from one moment to another to see a deer bound by; but the voice of the dogs seems neither to recede nor approach. At last a countryman comes by, and they ask him who it is that can be hunting at this late hour. But he, pointing to some puddles of water near their feet, replies: 'Yonder little animals are what you hear'. And there there were in fact a number of toads of the species *Bombinator igneus*. . . . This batrachian emits at the pairing season a silvery or rather crystalline note. . . . Sad and pure, it is a voice in nowise resembling that of hounds giving chase." (*Examen Critique de la Loi Psychophysique*, 1883, p. 61.)

These examples, to which I could easily add others if I had room, are perhaps sufficient to break down in the reader's mind the authority of a dictum which has been left so strangely unquestioned. So far from its being true, as Helmholtz says, that a genuine present sensation cannot have its character transformed by suggestions from past experience, it would seem as if the exact contrary were the rule, and as if, with Stumpf,¹ we might reverse Helmholtz's query, and ask: "What would become of our sense-perceptions in case experience were *not* able so to transform them?" Adding, "All wrong perceptions that depend on peculiarities in the organs are more or less perfectly corrected by the influence of imagination following the guidance of experience".

If, therefore, among the facts of optical space-perception (which we must now proceed to consider in more detail) we find instances of an identical organic eye-process, giving us different perceptions at different times, in consequence of different collateral circumstances suggesting different objective facts to our imagination, we must not hastily conclude, with the school of Helmholtz and Wundt, that the organic eye-process pure and simple, without the collateral circumstances, is incapable of giving us any sensation of a spatial kind at all. We must rather seek to discover *by what means* the circumstances can so have transformed a space-sensation, which, but for their presence, would probably have been felt in its natural purity. And I may as well say now in advance, that we shall find the means to be nothing more or less than association—the suggestion to the mind of optical sensations not actually present, but more habitually associated with the "collateral circumstances" than the one which they now displace. But before this conclusion emerges, it will be necessary to have reviewed the most important facts of optical space-perception, in relation to the organic conditions on which they depend. Readers acquainted with German optics will excuse what is already familiar to them in the following section.

(c) *The Two Theories of Retinal Perception.*

Let us begin the long and rather tedious inquiry by the most important case. Physiologists have long sought for a simple law by which to connect the seen direction and distance of objects with the retinal impressions they pro-

¹ *Op. cit.* p. 214.

duce. Two principal theories have been held on this matter, the "theory of identical points," and the "theory of projection"—each incompatible with the other, and each beyond certain limits becoming inconsistent with the facts.

The theory of identical points starts from the truth that on both retinae an impression on the upper half makes us perceive an object as below, on the lower half as above, the horizon; and on the right half an object to the left, on the left half one to the right, of the median line. Thus each quadrant of one retina corresponds as a whole to the *similar* quadrant of the other; and within two similar quadrants,

Fig. 1.



al and *ar*, for example, there should, if the correspondence were consistently carried out, be geometrically similar points which, if impressed at the same time by light emitted from the same object, should cause that object to appear in the same direction to either eye. Experiment verifies this surmise. If we look at the starry vault with parallel eyes, the stars all seem single; and the laws of perspective show that under the circumstances, the parallel light rays coming from each star must impinge on points within either retina which are geometrically similar to each other. The same result may be more artificially obtained. If we take two exactly similar pictures, smaller, or at least no larger, than those on an ordinary stereoscopic slide, and if we look at them as stereoscopic slides are looked at, that is, at one with each eye (a median partition confining the view of either eye to the picture opposite it), we shall see but one flat picture, all of whose parts appear sharp and single.¹ Identical points

¹ Just so, a pair of spectacles held an inch or so from the eyes seem like one large median glass. The faculty of seeing stereoscopic slides single without an instrument, is of the utmost utility to the student of physiological optics, and persons with strong eyes can easily acquire it. The only difficulty lies in dissociating the degree of accommodation from the degree of convergence which it usually accompanies. If the right picture is focussed by the right eye, the left by the left eye, the optic axes must

being impressed, both eyes see their object in the same direction, and the two objects consequently coalesce into one.

The same thing may be shown in still another way. With fixed head converge the eyes upon some conspicuous objective point behind a pane of glass; then close either eye alternately and make a little ink-mark on the glass 'covering' the object as seen by the eye which is momentarily open. On looking now with both eyes the ink-marks will seem single, and in the same direction as the objective point. Conversely let the eyes converge on a single ink-spot on the glass, and then by alternate shutting of them let it be noted what objects behind the glass the spot covers to the right and left eye respectively. Now with both eyes open, both these objects and the spot will appear in the same place, one or other of the three becoming more distinct according to the fluctuations of retinal attention.¹

Now what is the direction of this common place? The only way of defining the direction of an object is by *pointing to it*. Most people, if asked to look at an object over the horizontal edge of a sheet of paper which conceals their hand and arm, and then to point their finger at it, raising the hand gradually so that at last a finger-tip will appear above the sheet of paper, are found to place the finger not between either eye and the object, but between the latter and the root of the nose, and this, whether both eyes or either alone be used. Hering and Helmholtz express this by saying that we judge of the direction of objects as they would appear to an imaginary cyclopean eye, situated between our two real eyes, and with its optical axis bisecting the angle of convergence of the latter. Our two retinæ act, according to Hering, as if they were superposed in the place of this imaginary double-eye; we see by the corresponding points of each, situated far asunder as they really are, just as we *should* see if they were superposed and could both be excited together.

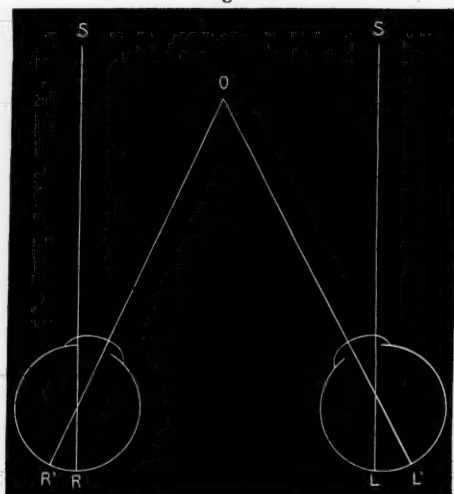
either be parallel or converge upon an imaginary point some distance behind the plane of the pictures, according to the size and distance apart of the pictures. The accommodation, however, has to be made for the plane of the pictures itself, and a near accommodation with a far-off convergence is something that the ordinary use of our eyes never teaches us to effect.

¹ These two observations prove the law of identical direction only for objects which excite the foveæ or lie in the line of direct looking. Observers skilled in indirect vision can, however, more or less easily verify the law for outlying retinal points.

The judgment of objective singleness and that of identical direction seem to hang necessarily together. And that of identical direction seems to carry with it the necessity of a common origin, between the eyes or elsewhere, from which all the directions felt may seem to be estimated. This is why the cyclopean eye is really a fundamental part of the formulation of the theory of identical retinal points, and why Hering, the greatest champion of this theory, lays so much stress upon it.

It is an immediate consequence of the law of identical projection of images on geometrically similar points that images which fall upon geometrically *disparate* points of the two retinae should be projected in disparate directions and that their objects should consequently appear in two places or double. Take the parallel rays from a star falling upon two eyes which converge upon a near object O, instead of being parallel, as in the previously instanced case. If SL and SR in Fig. 2 be the parallel rays, each of them will fall upon the nasal half of the retina which it strikes.

Fig. 2.



But the two nasal halves are disparate, geometrically *symmetrical*, not geometrically *similar*. The image on the left one will therefore appear as if lying in a direction leftward of the cyclopean eye's line of sight; the image of the right one will appear far to the right of the same direction.

The star will in short be seen double,—‘homonymously’ double.

Conversely if the star be looked at directly with parallel axes, O will be seen double, because its images will affect the outer or cheek halves of the two retinae, instead of one outer and one nasal half. The position of the images will here be reversed from that of the previous case. The right eye’s image will now appear to the left, the left eye’s to the right—the double images will be ‘heteronymous’.

The same reasoning and the same result ought to apply where the object’s place with respect to the direction of the two optic axes is such as to make its images fall not on non-similar retinal halves but on non-similar parts of similar halves. Here of course the directions of projection will be less widely disparate than in the other case, and the double images should appear to lie less widely apart.

Careful experiments made by many observers according to the so-called haploscopic method confirm this law and show that *corresponding points, of single visual direction*, exist upon the two retinae. For the detail of these one must consult the special treatises.

Note now an important consequence. If we take a stationary object and allow the eyes to vary their direction and convergence, a purely geometrical study will show that there will be some positions in which its two images impress corresponding retinal points, but more in which they impress disparate points. The former constitute the so-called horopter, and their discovery has been attended with great mathematical difficulty. Objects or parts of objects which lie in the eyes’ horopter at any given time cannot appear double. Objects lying out of the horopter would seem, if the theory of identical points were strictly true, necessarily and always to appear double.

Here comes the first great conflict of the identity-theory with experience. Were the theory true, we ought all to have an intuitive knowledge of the horopter as the line of distinctest vision. Objects placed elsewhere ought to seem, if not actually double, at least blurred. And yet no living man makes any such distinction between the parts of his field of vision. To most of us the whole field appears single, and it is only by rare accident or by special education that we ever catch a glimpse of a double image. In 1838, Wheatstone, in his truly classical memoir on binocular vision and the stereoscope,¹ showed that the disparateness of the

¹ This essay, published in the *Philosophical Transactions*, contains the germ of almost all the methods applied since to the study of optical percep-

points on which the two images of an object fall does not within certain limits affect its seen singleness at all, but rather the *distance* at which it shall appear. Wheatstone made an observation, moreover, which subsequently became the bone of much hot contention, in which he strove to show that not only might disparate images fuse, but images on corresponding or identical points might be seen double.¹

I am unfortunately prevented by the weakness of my own eyes from experimenting enough to form a decided personal opinion on the matter. It seems to me, however, that the balance of evidence is against the Wheatstonian interpretation, and that disparate points may fuse, without identical points for that reason ever giving double images. The two questions, "Can we see single with disparate points?" and "Can we see double with identical points?" although at the first blush they may appear, as to Helmholtz they appear, to be but two modes of expressing the same inquiry, are in reality distinct. The first may quite well be answered affirmatively and the second negatively.

Add to this that the experiment quoted from Helmholtz above by no means always succeeds, but that many individuals place their finger between the object and *one* of their eyes, oftentimes the right.² Finally, observe that the identity-theory, with its Cyclopean starting-point for all lines of direction, gives by itself no ground for the *distance* on any line at which an object shall appear, and has to be helped out in this respect by subsidiary hypotheses, which, in the hands of Hering and others, have become so complex as easily to fall a prey to critical attacks; and it will soon seem

tion. It seems a pity that England, leading off so brilliantly the modern epoch of this study, should so quickly have dropped out of the field. Almost all subsequent progress has been made in Germany, Holland and, *longo intervallo*, America.

¹ This is no place to report this controversy, but a few bibliographic references may not be inappropriate. Wheatstone's own experiment is in section 12 of his memoir. In favour of his interpretation see Helmholtz, *Phys. Opt.*, pp. 737-9; Wundt, *Physiol. Psychol.*, 2te Aufl., pp. 144; Nagel, *Sehen mit zwei Augen*, pp. 78-82. Against Wheatstone see Volkmann, *Arch. f. Ophth.*, v. 2-74 and *Untersuchungen*, p. 266; Hering, *Beiträge zur Physiologie*, 29-45, also in Hermann's *Hdbch. d. Physiol.*, Bd. iii., 1 Th., p. 435; Aubert, *Physiologie d. Netzhaut*, p. 322; Schön, *Archiv. f. Ophthal.*, xxiv., 1, p. 56-65; and Donders, *Ibid.*, xiii., 1, p. 15 and note.

² When we see the finger the whole time, we usually put it in the line joining object and left eye if it be the left finger, joining object and right eye if it be the right finger. Microscopists, marksmen or persons one of whose eyes is much better than the other almost always refer directions to a single eye, as may be seen by the position of the shadow on their face when they point at a candle-flame.

as if the law of identical seen directions by corresponding points, although a simple formula for expressing concisely many fundamental phenomena, is by no means an adequate account of the whole matter of retinal perception.¹

Does the *projection-theory* fare any better? This theory admits that each eye sees the object in a different direction from the other, along the line, namely, passing from the object through the middle of the pupil to the retina. A point directly fixated is thus seen on the optical axes of both eyes. There is only one point, however, which these two optical axes have in common, and that is the point to which they converge. Everything directly looked at is seen at this point and is thus seen both single and at its proper distance. It is easy to show the incompatibility of this theory with the theory of identity. Take an objective point (like O in Fig. 2, when the star is looked at) casting its images R' and L' on geometrically dissimilar parts of the two retinae and affecting the outer half of each eye. On the identity-theory it ought necessarily to appear double, whilst on the projection-theory there is no reason whatever why it should not appear single, provided only it be located by the judgment on each line of visible direction, neither nearer nor farther than its point of intersection with the other line.

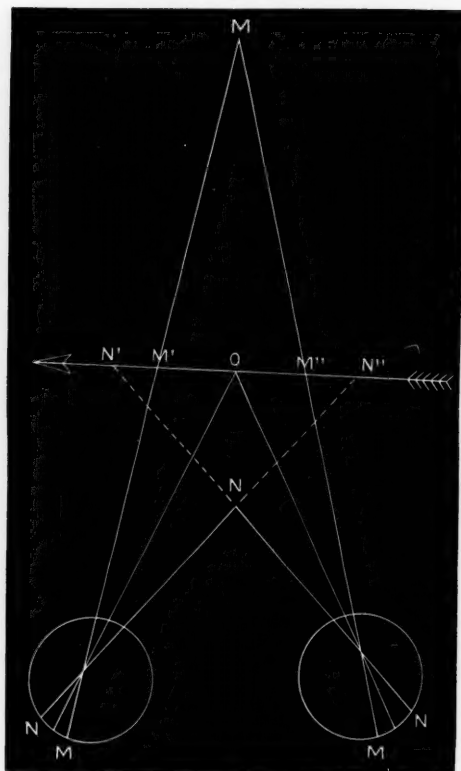
Every point in the field of view ought, in truth, if the projection-theory were uniformly valid, to appear single, entirely irrespective of the varying positions of the eyes, for from every point of space two lines of visible direction pass to the two retinae; and at the intersection of these lines, or just where the point is, there, according to the theory, it should appear. The objection to this theory is thus precisely the reverse of the objection to the identity-theory. If the latter ruled, we ought to see most things double all the time. If the projection-theory ruled, we ought never to see anything double. As a matter of fact we get too few double

¹ Professor Joseph Leconte, who believes strongly in the identity-theory, has embodied the latter in a pair of laws of the relation between positions seen single and double, near or far, on the one hand, and convergences and retinal impressions, on the other, which, though complicated, seems to me by far the best descriptive formulation yet made of the normal facts of vision. His account is easily accessible to the reader in his volume *Sight*, of the "International Scientific Series," bk. ii., c. 3, so I say no more about it now, except that it does not solve any of the difficulties we are noting in the identity-theory, nor account for the other fluctuating perceptions of which we go on to treat.

images for the identity-theory, and too many for the projection-theory.

The partisans of the projection-theory, beginning with Aguilonius, have always explained double images as the result of an erroneous judgment of the *distance* of the object, the images of the latter being projected by the imagination along the two lines of visible direction either nearer or farther than the point of intersection of the latter. A diagram will make this clear.

Fig. 3.



O being the point looked at, M being an object farther, and N an object nearer than it, will send the lines of visible

direction MM and NN to the two retinae. If N be judged as far as O, it must necessarily lie where the two lines of visible direction NN intersect the plane of the arrow, or in two places, at N' and at N". If M be judged as near as O, it must for the same reason form two images at M' and M".

It is, as a matter of fact, true that we often misjudge the distance in the way alleged. If the reader will hold his fore-fingers, one beyond the other, in the median line, and fixate them alternately, he will see the one not looked at, double; and he will also notice that it appears nearer to the plane of the one looked at, whichever the latter may be, than it really is. Its changes of apparent size as the convergence of the eyes alter, also prove the change of apparent distance. The distance at which the axes converge seems, in fact, to exert a sort of attraction upon objects situated elsewhere. Being the distance of which we are most acutely sensible, it invades, so to speak, the whole field of our perception. If two half-dollars be laid on the table a few inches apart, and the eyes fixate steadily the point of a pen held in the median line at varying distances between the coins and the face, there will come a distance at which the pen stands between the left half-dollar and the right eye, and the right half-dollar and the left eye. The two half-dollars will then coalesce into one; and this one will show its apparent approach to the pen-point by seeming suddenly much reduced in size.¹

Yet, in spite of this tendency to inaccuracy, we are never actually mistaken about the half-dollar being behind the pen-point. It may not seem far enough off, but still it is farther than the point. In general it may be said that where the objects are known to us, no such illusion of distance occurs in any one as the theory would require. And in some observers, Hering for example, it seems hardly to occur at all. If I look into infinite distance and get my finger in double images, they do not seem infinitely far off. To make objects at different distances seem equi-distant, careful precautions must be taken to have them alike in appearance, and to exclude all outward reasons for ascribing to the one a different location from that ascribed to the other. Thus Donders tries to prove the law of projection by taking two similar electric sparks, one behind the other on a dark ground, one seen double; or an iron rod placed so near to the eyes that its double images seem as broad as that of a fixated stove-pipe, the top and bottom of the objects being

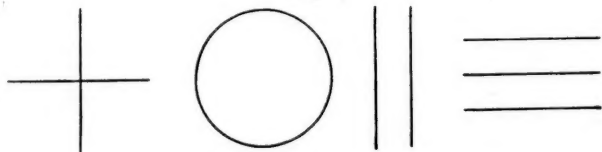
¹ Naturally it takes a smaller object at a less distance to cover by its image a constant amount of retinal surface.

cut off by screens so as to prevent all suggestions of perspective, &c. The three objects in each experiment seem in the same place.¹

Add to this the impossibility, recognised by *all* observers, of ever seeing double with the *fovea*, and the fact that authorities as able as those quoted in the note on Wheatstone's observation, deny that they see double then with identical points, and we are forced to conclude that the projection-theory, like its predecessor, breaks down. Neither formulates exactly or exhaustively a law for all our perceptions.

What does each theory try to do? To make of seen location a *fixed function* of retinal impression. Other facts may be brought forward to show how far from fixed are the perceptive functions of retinal impressions. We alluded a while ago to the extraordinary ambiguity of the retinal image as a revealer of magnitude. Produce an after-image of the sun and look at your finger-tip;—it will be smaller than your nail. Project it on the table, and it will be as big as a strawberry; on the wall, as large as a plate; on yonder mountain, bigger than a house. And yet it is an unchanged retinal impression. Prepare a sheet with the following figures strongly marked upon it, and get by direct fixation a distinct after-image of each.

Fig. 4.



Project the after-image of the cross upon the upper left-hand part of the wall, it will appear as in Fig. 5; on the upper right hand it will appear as in Fig. 6. The circle similarly

Fig. 5.

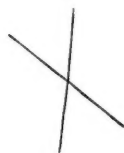


Fig. 6.

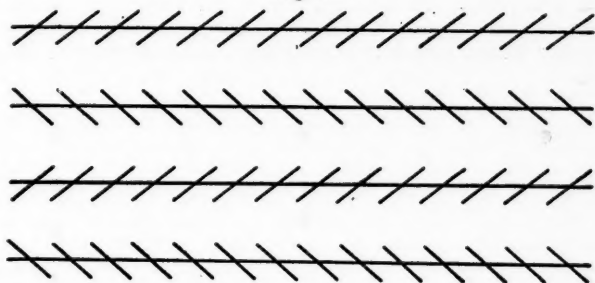


¹ *Archiv f. Ophthal.*, Bd. xvii., Abth. 2, pp. 44-6 (1871).

projected will be distorted into two different ellipses. If the two parallel lines be projected upon the ceiling or floor far in front, the farther ends will diverge; and if the three parallel lines be thrown on the same surfaces, the upper pair will seem farther apart than the lower.

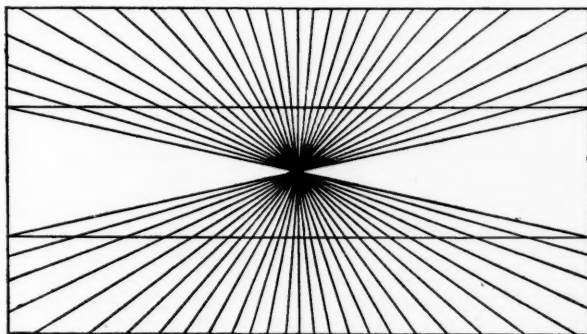
Adding certain lines to others has the same distorting effect. In what is known as Zöllner's pattern (Fig. 7), the long parallels tip towards each other the moment we draw the short slanting lines over them, yet their retinal images

Fig. 7.



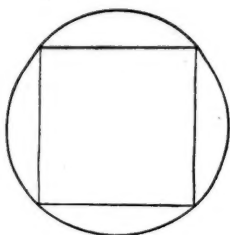
are the same they always were. A similar distortion of parallels appears in Fig. 8.

Fig. 8.



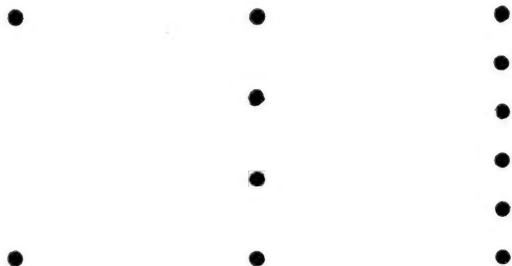
Drawing a square inside the circle (Fig. 9) gives to the outline of the latter an indented appearance where the square's corners touch it. Drawing the radii inside of one of the right angles in the same figure makes it seem larger

Fig. 9.



than the other. In Fig. 10, the retinal image of the space between the extreme dots is in all three lines the same, yet it seems much larger the moment it is filled up with other dots.

Fig. 10.



In the stereoscope certain pairs of lines which look single under ordinary circumstances immediately seem double when we add certain other lines to them.¹

(d) *Ambiguous Import of Eye-movements.*

These facts show the indeterminateness of the space-import of various *retinal impressions*. Take now the *eye's movements*, and we find a similar vacillation. When we follow a moving object with our gaze, the motion is 'voluntary'; when our eyes oscillate to and fro after we have made ourselves dizzy by spinning around, it is 'reflex'; and when the eyeball is pushed with the finger, it is 'passive'. Now, in all three of these cases we get a feeling from the movement as it effects itself. But the objective perceptions to which the feeling assists us are by no means the same. In the first case we may see a stationary field of view with one

¹ Volkmann, p. 253.

moving object in it; in the second, the total field swimming more or less steadily in one direction; in the third, a sudden jump or twist of the same total field.

The feelings of convergence of the eyeballs permit of the same ambiguous interpretation. When objects are near we converge strongly upon them in order to see them; when far, we set our optic axes parallel. But the exact degree of convergence fails to be felt; or rather, being felt, fails to tell us the absolute distance of the object we are regarding. Wheatstone arranged his stereoscope in such a way that the size of the retinal images might change without the convergence altering; or conversely, the convergence might change without the retinal image altering. Under these circumstances, he says,¹ the object seemed to approach or recede in the first case, without altering its size; in the second, to change its size without altering its distance—just the reverse of what might have been expected. Wheatstone adds, however, that “fixing the attention” converted each of these perceptions into its opposite. The same perplexity occurs in looking through prismatic glasses, which alter the eyes’ convergence. We cannot decide whether the object has come nearer, or grown larger, or both, or neither; and our judgment vacillates in the most surprising way. We may even make our eyes diverge, and the object will none the less appear at a finite distance. When we look through the stereoscope, the picture seems at no determinate distance. These and other facts have led Helmholtz to deny that the feeling of convergence has any very exact value as a distance-measurer.

With the feelings of accommodation it is very much the same. Donders has shown² that the apparent magnifying power of spectacles of moderate convexity hardly depends at all upon their enlargement of the retinal image, but rather on the relaxation they permit of the muscle of accommodation. This suggests an object farther off, and consequently a much larger one, since its retinal size rather increases than diminishes. But in this case the same vacillation of judgment as in the previously mentioned case of convergence takes place. The recession made the object seem larger, but the apparent growth in size of the object now makes it look as if it came nearer instead of receding. The effect thus contradicts its own cause. Everyone is conscious, on

¹ *Philosophical Transactions*, 1852, p. 4.

² *Anomalies of Accommodation and Refraction* (New Sydenham Soc. Transl.), London, 1864, p. 155.

first putting on a pair of spectacles, of a doubt whether the field of view draws near or retreats.¹

There is still another deception, occurring in persons who have had one eye-muscle suddenly paralysed. This deception has led Wundt to affirm that the eyeball-feeling proper, the incoming sensation of effected rotation, tells us only of the direction of our eye-movements, but not of their whole extent.² For this reason, and because not only Wundt, but many other authors, think the phenomena in these partial paralysees demonstrate the existence of a feeling of innervation, a feeling of the outgoing nervous current, opposed to every afferent sensation whatever, it seems proper to note the facts with a certain degree of detail.

Suppose a man wakes up some morning with the external rectus muscle of his right eye half-paralysed, what will be the result? He will be enabled only with great effort to rotate the eye so as to look at objects lying far off to the right. Something in the effort he makes will make him feel as if the object lay much farther to the right than it really is. If the left and sound eye be closed, and he be asked to touch rapidly with his finger an object situated towards his right, he will point the finger to the right of it. The current explanation of the 'something' in the effort which causes this deception is, that it is the sensation of the outgoing discharge from the nervous centres, the "feeling of innervation," to use Wundt's expression, requisite for bringing the open eye with its weakened muscle to bear upon the object to be touched. If that object be situated 20 degrees to the right, the patient has now to innervate as powerfully to turn the eye those 20 degrees as formerly he did to turn the eye 30 degrees. He consequently believes as before that he *has* turned it 30 degrees; until, by a newly acquired custom, he learns the altered spatial import of all the discharges his brain makes into his right abducens nerve.

The "feeling of innervation," maintained to exist by this and other observations, plays an immense part in the space-theories of certain philosophers, especially Wundt. I have elsewhere tried to show that the observations by no means

¹ These strange contradictions have been called by Aubert "secondary" deceptions of judgment. See *Grundzüge d. Physiologischen Optik*, Leipzig, 1876, pp. 601, 615, 627. One of the best examples of them is the small size of the moon as first seen through a telescope. It is larger and brighter, so we see its details more distinctly and judge it nearer. But because we judge it so much nearer we think it must have grown smaller. Cf. Charpentier in *Jahresb.* x. 430.

² *Revue Philosophique*, iii. 9, p. 220.

warrant the conclusions drawn from them, and that the feeling in question is probably a wholly fictitious entity.¹ Meanwhile it suffices to point out that even those who set most store by it are compelled, by the readiness with which the translocation of the field of view becomes corrected and further errors avoided, to admit that the precise space-import of the supposed sensation of outgoing energy is as ambiguous and indeterminate as that of any other of the eye-feelings we have considered hitherto.

I have now given what no one will call an under-statement of the facts and arguments by which it is sought to banish the credit of directly revealing space from each and every kind of eye-sensation taken by itself. The reader will confess that they make a very plausible show, and most likely wonder whether my own theory of the matter can rally from their damaging evidence. But the case is far from being hopeless; and the introduction of a discrimination hitherto unmade will, if I mistake not, easily vindicate the view adopted in these pages, whilst at the same time it makes ungrudging allowance for all the ambiguity and illusion on which so much stress is laid by the advocates of the intellectualist theory.

(c) *The Choice of the Visual Reality.*

We have native and fixed optical space-sensations; but experience leads us to select certain ones from among them to be the exclusive bearers of reality: the rest become mere signs and suggesters of these. The factor of selection, on which we have already laid so much stress, here as elsewhere is the solving word of the enigma. If Helmholtz, Wundt and the rest, with an ambiguous retinal sensation before them, meaning now one size and distance, and now another, had not contented themselves with merely saying:—The size and distance are not this sensation, they are something beyond it which it merely calls up, and whose own birth-place is afar—in ‘synthesis’ (Wundt) or in ‘experience’ (Helmholtz) as the case may

¹ Cp. “The Feeling of Effort” in the *Anniversary Memoirs of the Boston Society of Natural History*, Boston, 1880. The only fact I am acquainted with which still seems to make for a feeling of innervation is the illusion of movement described by Mach on pp. 65-6 of his *Beiträge zur Analyse der Empfindungen* (1886). Not having yet experimentally verified Mach’s observation, I am unable to criticise his explanation of it. The consequence is that the theory of the *Innervationsgefühl* has the last word in the discussion. But its existence or non-existence is quite immaterial, as far as my own space-theory is concerned.

be ; if they had gone on definitely to ask and definitely to answer the question, What are the size and distance in their proper selves ? they would not only have escaped the present deplorable vagueness of their space-theories, but they would have seen that the objective spatial attributes 'signified' are simply and solely *certain other optical sensations now absent*, but which the present sensations suggest.

What, for example, is the slant-legged cross which we think we see on the wall when we project the rectangular after-image high up towards our right or left (Figs. 5 and 6) ? Is it not in very sooth a retinal sensation itself ? An imagined sensation, not a felt one, it is true, but none the less essentially and originally sensational or retinal for all that,—the sensation, namely, we should receive if a 'real' slant-legged cross stood on the wall *in front of us* and threw its image on our eye. That image is not the one our retina now holds. Our retina now holds the image which a cross of square shape throws when in front, but which a cross of the slant-legged pattern *would* throw, provided it were actually on the wall in the distant place at which we look. Call this actual retinal image the 'square' image. The square image is then one of the innumerable images the slant-legged cross can throw. Why should another one, and that an absent one, of those innumerable images be picked out to represent exclusively the slant-legged cross's 'true' shape ? Why should that absent and imagined slant-legged image displace the present and felt square image from our mind ? Why, when the objective cross gives us so many shapes, as it varies its position, should we think we feel the true shape only when the cross is directly in front ? And when that question is answered, how can the absent and represented feeling of a slant-legged figure so successfully intrude itself into the place of a presented square one ?

Before answering either question, let us be doubly sure about our facts, and see how true it is that in our dealings with objects we always do pick out *one* of the visual images they yield, to constitute their real form or size.

The matter of size has been already touched upon (p. 192), and no more need be said of it here. As regards shape, almost all the retinal shapes objects throw are perspective 'distortions'. Square table-tops constantly present two acute and two obtuse angles ; circles drawn on our wall-papers, our carpets or on sheets of paper usually show like ellipses ; parallels approach as they recede ; human bodies are foreshortened ; and the transitions from one to another

of these altering forms are infinite and continual. Out of the flux however, one phase always stands prominent. It is the form the object has when we see it easiest and best; and that is when our eyes and the object both are in what may be called the 'normal' position. In this position our head is upright and our optic axes either parallel or symmetrically convergent; the plane of the object is perpendicular to the visual plane; and if the object is one containing many lines it is turned so as to make them, as far as possible, either parallel or perpendicular to the visual plane. In this situation it is that we compare all shapes with each other; here every exact measurement and decision is made.¹

It is very easy to see why the normal situation should have this extraordinary pre-eminence. First, it is the position in which we easiest hold anything we are examining in our hands; second, it is a turning-point between all right- and all left-hand perspective views of a given object; third, it is the only position in which symmetrical figures seem symmetrical and equal angles seem equal; fourth, it is often that starting-point of movements from which the eye is least troubled by axial rotations, by which *superposition*² of the retinal images of different lines and different parts of the same line is easiest produced, and consequently by which the eye can make the best comparative measurements in its sweeps. All these merits single the normal position out to be chosen. No other point of view offers so many æsthetic and practical advantages. Here we believe we see the object as it *is*; elsewhere, only as it seems. Experience and custom soon teach us, however, that the seeming appearance passes into the real one by continuous gradations. They teach us, moreover, that seeming and being may be strangely interchanged. Now a real circle may slide into a seeming ellipse; now an ellipse may, by sliding in the same direction, become a seeming circle; now a rectangular cross grows slant-legged; now a slant-legged one grows rectangular.

Almost any form in oblique vision may be thus a derivative of almost any other in 'primary' vision; and we must learn, when we get one of the former appearances, to translate it into the appropriate one of the latter class; we must learn of what optical 'reality' it is one of the optical signs.

¹ The only exception seems to be when we expressly wish to abstract from particulars, and to judge of the general 'effect'. Witness ladies trying on new dresses with their heads inclined and their eyes askance; or painters in the same attitude judging of the 'values' in their pictures.

² The importance of Superposition will appear later on.

Having learned this, we do but obey that law of economy or simplification which dominates our whole psychic life, when we attend exclusively to the 'reality' and ignore as much as our consciousness will let us the 'sign' by which we came to apprehend it. The signs of each reality being multiple and the 'reality' one and constant, we gain the same mental relief by abandoning the former for the latter, that we do when we abandon a mental image, with all its fluctuating characters, for the perfectly definite and unchangeable name it suggests. The selection of the several 'normal' appearances from out of the jungle of our optical experiences, to serve as the real sights of which we shall think, is psychologically a parallel phenomenon to the habit of thinking in words, and has a like use. Both are substitutions of terms few and fixed for terms manifold and vague.

5. *The Intellectualist Theory of Space.*

This service of sensations as mere signs, to be ignored when they have evoked the other sensations which are their significates, was noticed first by Berkeley and remarked in many passages, as the following :—

"Signs, being little considered in themselves, or for their own sake, but only in their relative capacity and for the sake of those things whereof they are signs, it comes to pass that the mind overlooks them, so as to carry its attention immediately on to the things signified . . . which in truth and strictness are not *seen*, but only *suggested* and *apprehended* by means of the proper objects of sight which alone are seen" (*Divine Visual Language*, § 12).

Berkeley of course erred in supposing that the thing suggested was not even *originally* an object of sight, as the sign now is which calls it up. Reid expressed Berkeley's principle in yet clearer language :—

"The visible appearances of objects are intended by nature only as signs or indications, and the mind passes instantly to the things signified, without making the least reflection upon the sign, or even perceiving that there is any such thing. . . . The mind has acquired a confirmed and inveterate habit of inattention to them (the signs). For they no sooner appear than, quick as lightning, the thing signified succeeds and engrosses all our regard. They have no name in language; and although we are conscious of them when they pass through the mind, yet their passage is so quick and so familiar that it is absolutely unheeded; nor do they leave any footsteps of themselves, either in the memory or imagination" (*Inquiry*, chap. v., §§ 2, 3).

If we review the facts we shall find every grade of non-attention between the extreme form of overlooking mentioned by Reid (or forms even more extreme still) and complete conscious perception of the sensation present. Sometimes it is literally impossible to become aware of the latter.

Sometimes a little artifice or effort easily leads us to discern it together, or in alternation, with the 'object' it reveals. Sometimes the present sensation is held to *be* the object or to reproduce its features in undistorted shape, and *then*, of course, it receives the mind's full glare.

The deepest inattention is to subjective optical sensations, strictly so called, or those which are not signs of outer objects at all. Helmholtz's treatment of these phenomena, *muscae volitantes*, negative after-images, double images, &c., is very satisfactory. He says:—

"We only attend with any ease and exactness to our sensations in so far forth as they can be utilised for the knowledge of outward things; and we are accustomed to neglect all those portions of them which have no significance as regards the external world. So much is this the case that for the most part special artifices and practice are required for the observation of these latter more subjective feelings. Although it might seem nothing should be easier than to be conscious of one's own sensations, experience nevertheless shows that often enough either a special talent like that showed in eminent degree by Purkinje, or accident or theoretic speculation, are necessary conditions for the discovery of subjective phenomena. Thus, for example, the blind spot on the retina was discovered by Mariotte by the theoretic way; similarly by me the existence of 'summation' tones in acoustics. In the majority of cases accident is what first led observers whose attention was especially exercised on subjective phenomena to discover this one or that; only where the subjective appearances are so intense that they interfere with the perception of objects are they noticed by all men alike. But if they have once been discovered it is for the most part easy for subsequent observers who place themselves in proper conditions and bend their attention in the right direction to perceive them. But in many cases—for example, in the phenomena of the blind spot, in the discrimination of overtones and combination-tones from the ground-tone of musical sounds, &c.—such a strain of the attention is required, even with appropriate instrumental aids, that most persons fail. The very after-images of bright objects are by most men perceived only under exceptionally favourable conditions, and it takes steady practice to see the fainter images of this kind. It is a commonly recurring experience that persons smitten with some eye-disease which impairs vision suddenly remark for the first time the *muscae volitantes* which all through life their vitreous humour has contained, but which they now firmly believe to have arisen since their malady; the truth being that the latter has only made them more observant of all their visual sensations. There are also cases where one eye has gradually grown blind, and the patient lived for an indefinite time without knowing it, until, through the accidental closure of the healthy eye alone, the blindness of the other was brought to attention.

"Most people when first made aware of binocular double images are uncommonly astonished that they should never have noticed them before, although all through their life they had been in the habit of seeing singly only those few objects which were about equally distant with the point of fixation, and the rest, those nearer and farther, which constitute the great majority, had always been double.

"We must then *learn* to turn our attention to our particular sensations, and we learn this commonly only for such sensations as are means of

cognition of the outer world. Only so far as they serve this end have our sensations any importance for us in ordinary life. Subjective feelings are mostly interesting only to scientific investigators ; were they remarked in the ordinary use of the senses, they could only cause disturbance. Whilst, therefore, we reach an extraordinary degree of fineness and security in objective observation, we not only do not reach this where subjective phenomena are concerned, but we actually attain in a high degree the faculty of overlooking these altogether, and keeping ourselves independent of their influence in judging of objects, even in cases where their strength might lead them easily to attract our attention" (*Physiol. Optik*, pp. 431-2).

Even where the sensation is not merely subjective, as in the cases of which Helmholtz speaks, but is a sign of something outward, we are also liable, as Reid says, to overlook its intrinsic quality and attend exclusively to the image of the 'thing' it suggests. But here everyone *can* easily notice the sensation itself if he will. Usually we see a sheet of paper as uniformly white, although a part of it may be in shadow. But we can in an instant, if we please, notice the shadow as local colour. A man walking towards us does not usually seem to alter his size ; but we can by setting our attention in a peculiar way, make him appear to do so. The whole education of the artist consists in his learning to see the presented signs as well as the represented things. No matter what the field of view *means*, he sees it also as it *feels*—that is, as a collection of patches of colour bounded by lines—the whole forming an optical diagram of whose intrinsic proportions one who is not an artist has hardly a conscious inkling. The ordinary man's attention passes *over* them to their import ; the artist's turns back and dwells *upon* them for their own sake. 'Don't draw the thing as it *is*, but as it *looks* !' is the endless advice of every teacher to his pupil ; forgetting that what it 'is' is what it would also 'look', provided it were placed in what we have called the 'normal' situation for vision. In this situation the sensation as 'sign' and the sensation as 'object' coalesce into one, and there is no contrast between them.

But a great difficulty has been made of certain peculiar cases which we must now turn to consider. They are cases in which a present sensation, whose existence is supposed to be proved by its outward conditions being there, seems absolutely suppressed or changed by the image of the 'thing' it suggests.

This matter carries us back to what was said on p. 327. The passage there quoted from Helmholtz refers to these cases. He thinks they conclusively disprove the original and intrinsic spatiality of any of our retinal sensations ; for

if such a one, actually present, had an immanent and essential space-determination of its own, that might well be added to and over-laid or even momentarily eclipsed by suggestions of its signification, but how could it possibly be altered or completely *suppressed* thereby? Of actually present sensations, he says, being *suppressed* by suggestions of experience—

"We have not a single well-attested example. In all those illusions which are provoked by *sensations* in the absence of their usually exciting objects, the mistake never vanishes by the better understanding of the object really present, and by insight into the cause of deception. Phosphenes provoked by pressure on the eye-ball, by traction on the entrance of the optic nerve, after-images, &c., remain projected into their apparent place in the field of vision, just as the image projected from a mirror's surface continues to be seen *behind* the mirror, although we *know* that to all these appearances no outward reality corresponds. True enough, we can remove our attention, and keep it removed, from sensations that have no reference to the outer world, those, *e.g.*, of the weaker after-images, and of entoptic objects, &c. . . . But what would become of our perceptions at all if we had the power not only of ignoring, but of *transforming into their opposites*, any part of them that differed from that outward experience, the image of which, as that of a present reality, accompanies them in the mind" (*Physiol. Optik*, p. 817)?

And again: "On the analogy of all other experience, we should expect that the conquered feelings would persist to our perception, even if only in the shape of recognised illusions. But this is not the case. One does not see how the assumption of originally spatial sensations can explain our optical cognitions, when in the last resort those who believe in these very sensations find themselves obliged to assume that they are *overcome* by our better judgment, based on experience."

These words, coming from such a quarter, necessarily carry great weight. But the authority even of a Helmholtz ought not to shake one's critical composure. And the moment one abandons abstract generalities and comes to close quarters with the particulars, I think one easily sees that no such conclusions as those we have quoted follow from the latter.

Helmholtz's (and Wundt's) argument in brief is this, that since our spatial interpretation of certain optical sensations is altered by ideas or other sensations alongside of the former, this spatial interpretation could never have been an original element of the sensations as such, but must always have been what it proves itself now to be, an *inference*, made *unconsciously* from a number of premisses.

Profitably to conduct the somewhat tedious discussion, I must divide the instances into groups. But the room vouchsafed me in this number of MIND is already exhausted, and the discussion of the facts relied on by these authors had best form the opening section of my fourth and final article.

II.—ASSOCIATION AND THOUGHT.

By F. H. BRADLEY.

THE intention of this paper is to show in outline how Thought comes to exist. Its method, I trust, is strictly psychological. It has to do solely with psychical occurrences and their laws. The facts immediately experienced within a single organism or soul,¹ and those facts regarded merely as events which happen, make the object of psychology.²

¹ Not *subject*, because at first there is no proper subject, nor Ego for the further reason that in abnormal states we may have more than one Ego, or none at all. If we do not define by the organism, as for some reasons is undesirable (I do not discuss this), we must use the word 'soul' or 'mind'. In psychology I should define the soul as "a totality of immediate experience, possessed of a certain temporal continuity of existence, and again of a certain identity in character". "Totality" is used to exclude partial states. "Experience" is not definable: it can only be indicated. "Immediate" negatives and excludes phenomena so far as their content is used beyond their existence: truth, *e.g.*, as truth is not merely psychical. The amount of continuity and ideal identity required to make a single soul is matter of opinion, and mainly, I should say, of arbitrary opinion. The above definition is of course open to metaphysical objections, as are the conceptions which *must* be used in all empirical science. The objections are therefore irrelevant. It would be as idle to urge that the soul (as above) is not a real thing, as to say the organism is not one real thing because its matter has changed. At any given time the soul is its phenomenal contents *plus* that past which is taken to belong to it.

² On the object of Psychology see an article by the Editor, MIND No. 29. Mr. Ward, MIND No. 43, pp. 46-67, in objecting to the above position, has invited me to define a psychical fact or event. A metaphysical definition I of course decline to give in an empirical science (*Principles of Logic*, pp. 315-18). A definition in psychology is for me a working definition. It is not expected to have more truth than is required for practice in its science; and if when pressed beyond it contradict itself, that is quite immaterial. With this understanding I will state what I mean by a psychical event, first giving an incomplete definition and then correcting it. A psychical fact must (1) be immediately experienced (see above). (2) It must have duration: what does not exist through a succession of moments is not a fact. (3) It must have quality: there must be sense in asking, Of what sort? quality being here taken to include the aspect of pleasure and pain, though usually it is convenient to separate quality from 'tone'. (4) A fact has intensity. (5) In reply to the possible objection that duration has not duration, &c., we must say, Any one of the above aspects is a fact, so far as it is a mere aspect of that which has all the rest. So far, I hope, the definition is not very obscure. But, further, (6) it is necessary to include relations, even where no one would say that they are immediately experienced. Is the reappearance of some traits of childhood in old age not a psychical fact? But are these relations of succession and identity imme-

The word Association has been used to express my agreement with the English school at its best. With it I am convinced that thought proper is a product, and that, starting from what is presented, and keeping wholly to that field and to the laws of its movements, our science can trace thought's probable generation. And if at any point we fail, then that point must be marked as 'at present unknown'. Nothing can warrant our importation of a faculty or faculties, or a subject and its functions, or an activity, or an energy, if we mean by these more than some law of phenomena, some way of happening among psychical events. Our sole remedy is to reconsider our data and their laws, and to refuse to bring shame upon our honest nakedness by scraps of physiology and rags of metaphysics. It is to mark my entire adhesion to this principle that I have used "Associa-

diately experienced either by the soul or by the observing psychologist? We see here the impotence of empirical science to justify its principles theoretically. We have to amend our definition of fact; and yet, if amended, it threatens to let in metaphysics. But we meet this practically by the proviso that the above relations are not facts, save and except so far as they exist between facts as previously defined. That, I hope, answers the purpose; and the definition will run: "A psychical fact is anything which is immediately experienced and has duration, quality, intensity; or is any one of these aspects, as a mere distinguishable aspect,—so far, that is, as one aspect is taken as belonging to something which possesses the other aspects also; or, again, is any relation existing between any facts as previously defined". If we leave individual states and go on to the general, and ask if laws are facts, that is, to some extent, I presume, a matter of taste. I should say that, to speak properly, they are not so, though it may be convenient to call them so. The laws, of course, are confined to the region of facts.

It must be, of course, understood that our science does not disregard other aspects of psychical states, *e.g.*, logical or ethical. But it looks at them merely with a view to deal with them as appearing in and as influencing the course of psychical events. And a reply to the objection that "an unanalysable element in every psychical event" is not itself an event (*MIND* No. 45, p. 66), seems hardly wanted when we know what we mean by an event. Obviously the whole life of a man is an event, is a piece of new duration, though no event to the man. And, apart from that, changes in the intensity of the element would, of course, be events; as would be also the changes in the relation of that element to others. Mr. Ward, I presume, has argued from some meaning which he attaches to fact and I do not. But my object is merely to find a plain way of barring metaphysics out of psychology, and I am far from asserting that another way cannot be found, though an "individualistic standpoint" is, I am sure, no solution. Unless this end is reached somehow, the amount of metaphysics to be introduced is limited merely by the inclination or the knowledge of the psychologist. I say advisedly that I do not know a single metaphysical question which can be ruled out of psychology on principle, if any single one is let in; and I would call upon every English psychologist to face this problem without reserve, and to come either to an understanding or at least to a clear issue.

tion," but I dissent from very much that has been joined to the word. The English school in my opinion has failed to show the origin of the higher phenomena, because in its starting-point it has been seriously mistaken. Both the elements and the laws, into which (like all science) it has analysed the given, have been formulated in such a way that successful advance from them seems not possible. And the main cause is to be found in that dogmatic Atomism, which (whatever it might be as a statement of first principles) had no right to interfere with an empirical science. But I will not repeat a criticism which elsewhere I felt bound to urge to the extreme, and perhaps urged too harshly. I would rather feel that, in helping (so far as I can help) to modify the starting-point and to make progress easier, I am endeavouring at least to work in the spirit of the best English tradition.

For more reasons than one I cannot pretend to offer here the satisfactory treatment of so large a subject. I shall attempt in the first place to mark out the ground by pointing to the main characteristic of Thought; I shall then try to show rapidly how this feature has arisen, from what foundation, and by what laws; and in the third place shall deal with some difficulties. I shall have everywhere to be so brief as to require the utmost indulgence of the reader, and will at once begin with the first of my tasks.

What is the chief characteristic of Thought? I shall make on this point a very short statement, and must be allowed to refer to my *Principles of Logic*. The main feature is objectivity, and this means a control proceeding from the object. That which suffers control is the entire psychical process, so far as it does not subserve the development of the object. Sensations, emotions, fancies, volitions, are suppressed or modified to suit this end. I may of course will to think, and to think this or that, but the way in which this or that shapes itself in thought is independent of my liking. To interfere would be to vitiate or wholly destroy. But now what is the object? That it is not mere sense-experience should be a common-place. Nor is it simply whatever is excluded from the self, because the self is also an object of thought. And to say it is that of which we are conscious, would throw no light, if we may be conscious where we do not (strictly) think. The object is any portion of the psychical process, so far as it bears and subserves a certain character. It must in the first place have a meaning, an ideal content which is distinct from its existence as a psychical occurrence. And further, this

content must preserve its identity. It must from beginning to end be a self-same whole which keeps together without any foreign assistance. We must be able to say that from the beginning it has been and still is merely itself, and is therefore in the end because of its beginning. This claim may be invalid, but it is involved in our beliefs as to what thought must be if it keeps its character. The standard is, in short, to include all the facts and to get them consistent, but to do this merely in an ideal form. The end in other words is individuality, which in the attempt to be perfect must try to be complete, because its autocracy is not possible if its empire is limited. I believe that what follows will make this more clear, and I have stated it that we may realise the task before us. This goal has to be reached by a natural development from the lowest beginnings of psychical life.

I have said that Association in its usual sense has failed to account for this development, and has failed at the end because wrong at the beginning. We have now to modify its principles and make them more effective; but I will first repeat how entirely I accept their main tendency. Psychology is concerned with nothing beyond presentation and its laws, with nothing but the process of given events and the modes of their happening. It is from these elements that we must explain the generation of all else, for at all events no *other* explanation is admitted within our science. I shall state lower down what I mean by presentation, and will now point out the changes to be made in our ordinary doctrine. First, the Atomism must go wholly. We must get rid of the idea that our mind is a train of perishing existences, that so long as they exist have separable being, and, so to speak, are coupled up by another sort of things which we call relations. If we turn to what is given this is not what we find, but rather a continuous mass of presentation in which the separation of a single element from all context is never observed, and where, if I may use the expression, no one ever saw a carriage, and still less a coupling, divided from its train. You may urge that your doctrine is the absolute truth in the light of metaphysics. That may be so, but in psychology, because it will not work, it must not be let in. And to the Associationist, as to the Herbartian, we must reply that in our science their metaphysics are irrelevant, and that in other respects we can accept wholly the principles of neither, because (as they are used) they do not seem to work successfully, and because without great inconsistencies they would not work at all.

Hence the Atomism must go wholly, and the "associative links" must be connexions of content, not conjunctions of existences; in other words, association marries only universals.¹ I of course do not mean that bare universals are psychical facts. These connexions in strictness are not facts at all, although at times it may be convenient to call them so. An actual fact works so or so because of such or such a connexion when its content has one of the features connected; and it is then a case or instance of the law. But the association by itself is the law by itself, and no actual event that can ever occur. Lower down I shall have to say more on what are called "dispositions," and must now advance rapidly. Atomism being rejected, the Law of Similarity goes with it. This of course expresses truth, but a truth which is derivative and a consequence from others. Its importance rests on the objection to sameness, but psychology (like other sciences) has a right to call phenomena identical so far as they have the same content. And if the sameness is a fiction, none the less it means to use it. We are therefore left with Contiguity, and it is necessary to restate this so as to make it depend always on identity of content, not of existence. "Every mental element when present tends to reinstate those elements with which it has been presented." The meaning of "tends" is that it does so unless prevented at the time, or unless something in the meantime has happened to prevent it, and that according to circumstances a greater or less force is required for prevention. The "element" means any distinguishable aspect of the 'what' as against the mere 'that'. And we must remember that these connexions, being independent of the 'this' of mere presentation, hold good everywhere, at all times, and with every context. This has most vital consequences. Psychology should of course not assert that its elements in truth and really do work in abstraction and apart from a presented context, and, if it is wise, it will remember that its separation of one part of the soul from the rest, or even again from the Universe at large, is made wholly on sufferance. But to anyone who brands this assumption as falsehood we must reply, 'If a fiction, it deals with the facts. Let psychology mind its own business.' Whether this altered law of Contiguity should keep its name, or have another such as Redintegration, depends on those who have

¹ I must refer the reader here to my *Principles of Logic*. I do not think I should be justified in occupying the pages of MIND with a reprint of my work.

earned the right to dispose of it. I shall use the term if they permit me.

We have so far reduced the laws of Association to a single principle, and so far I have been able to refer the reader to my *Principles of Logic*.¹ I must now proceed more slowly. Beside this improved law of Contiguity or Redintegration, there is a law of Blending or Coalescence or Fusion. Where different elements (or relations of elements) have any feature the same they may unite wholly or partially. The more wholly they unite the more their differences are destroyed, with a transfer of strength to the result. And where they unite partially, they may or may not bring before us a new relation. There is no doubt that these laws of Contiguity and Blending work so closely together, that in many cases we hardly know which we have to lay stress on; but I do not think that one can be reduced to the other. Unless we extend blending beyond *events* (to this point I shall return), it will not cause reproduction, since in that only one of the elements can be present, and what is absent cannot blend. And, on the other hand, though with blending we have usually reproduction, yet we also have effects which that will not explain. I must pause to illustrate this latter point. Take the cases first where strengthening is produced, where, *e.g.*, an idea makes intense a sensation. You may say that the sensation has its content enlarged by ideal recovery, and that doubtless is usual; but to say that it is necessary and that it explains the phenomenon seems quite untenable. In instances such as those where attention strengthens sensations in the extremities or elsewhere, I cannot *always* find an enlargement of content, and, if there is ideal recovery, I am sometimes at a loss to say *what* is reinstated. Take the cases again where distinctions are produced in a perception or idea.² I see a blur in the sky, and because I know it is a constellation, I then perceive that it is so. Again, I am thinking of an Englishman and then see a host of ants, which makes me think of an army of Englishmen. In the first case we may be told that it is all reproduction, and that the interstices are recovered by ideal contiguity. But, I answer, if the idea already was there when I did *not* perceive, will its further reinstatement

¹ Professor Bain in MIND No. 46 has criticised some points in the account I there gave. I am sorry that the amount of space here at my disposal compels me to say merely that my opinions have not been changed.

² I have got considerable assistance here from Fortlage, *System der Psychologie*, 1855. Cp. Volkmann, *Lehrbuch*, § 93.

effect the perception? Or, again, if the idea was not present, and there really has been an ideal reproduction (or, again, an external suggestion), does that by itself explain sufficiently my altered perception? We must remember that, having two objects apparently the same, after an idea has been suggested, we may go on to perceive the suggestion as a fact in one case and *not* in the other. This must point to a strengthening as distinct from a recovery. And when I thought of an army, if the idea of an Englishman was already there, it could hardly be recovered; and where through association it was brought in by the ants, yet how was it altered and turned into an army? Was it not by a transfer through blending following on the reinstatement? We must say then that fusion, the importance of which will appear in the sequel, is not a case of reproduction.

Can we go on to find a principle which underlies the two laws we have just set forth?¹ I think we can, though we must not say that these laws can be deduced directly from it. Every mental element (to use a metaphor) strives to make itself a whole or to lose itself in one, and it will not have its company assigned to it by mere conjunction in presentation. Each struggles to develop itself by the weapon of identity, which gives strength by coalescence and enlargement by recall. And this effort to succeed by association with like characters may bring loss of life to the single member. To speak more strictly, each element tends (that is, moves unless prevented) by means of fusion and redintegration to give itself a context through identity of content, and in the result which is so made the element may not survive in a distinguishable form. It is also a fact that the collision, which results in great part from this movement, causes pain and unrest; and I think we may see that the unrest cannot cease as long as the elements given are unable to form a whole possessed throughout of such a content that it suggests nothing out of harmony with anything else. The reader may dismiss this statement as mere "transcendentalism"; but until my error is shown me I shall believe that it is strict empirical psychology, a mere general statement of the way in which events do happen. We may call it, if we please, the law of Individuation, and we should find that thought and will are each one case of it, made distinct by the different fields in which particularisation is worked out. But we must remember that our law perhaps to some extent

¹ The process which Wundt calls *Assimilation* I take to be subordinate where it is not fictitious.

uses a scientific fiction. It is convenient to speak of the movement of each element, but we must not assert (or deny) that in reality the element can do or be anything—unless, indeed, we are prepared to make psychology a battle-field for metaphysicians.

We have so far seen that Association can be reduced to the struggle of each element towards an independent totality by means of sameness in content, and that this principle works by coalescence where the conditions are given, and, again, by reintegration made through the establishment of connexions superior to time. And if we like to call the movement an *ideal* process, this may distinguish it from what is by comparison *mechanical*, the basis upon which alone it exists and to which it has to suit itself. I must now point out this machinery, though I fear without completeness. There is first the incoming of fresh sensations, external and internal, partly new and in part the same. There is the disappearance of old ones, caused I will not here ask how. There is the limit to the amount of what can come to us at once, a limit varying but effective. We see here the conditions of another kind of struggle, a struggle for existence among actual facts, alongside of the former struggle through identity, but crossing it at times and blending with it inextricably. In this more mechanical conflict what favours individuals? We must mention first habit, aptitudes produced by repetition, or got by heredity, or again in some way not known. Elements suited to these are strengthened, and in some cases also enlarged, and so tend to dominate. Where these aptitudes depend on ideal connexions they are instances of association, but where or so far as there is no psychical revival this is not the case. I think that psychology must accept this fact as an ultimate, unless it will venture on Herbart's startling assumptions or deviate into physiology. Passing by this, we come next to mere natural strength of presentation. If we wish to get this *bare*, we must look for it in 'disparate' sensations, those which possess no *special* common character.¹ Strength will here amount simply to prevalence or domination. That which occupies more mental space than, or again totally or partially excludes, something else is said to have more force. And it has *bare* force when it prevails, not by virtue of aught else (such as

¹ All sensations, in my judgment, do possess some common character. This will hold good whether we do or do not accept the view that the special sense *continua* have been differentiated from one primitive *continuum*. See Horwicz, *Psych. Analysen*.

habit or pleasure), but in its own right and simply.¹ Turning now from these conditions to one not mechanical, though hardly ideal, we reach the influence of pleasure and pain. That these work seems certain (though of course not demonstrable), but the way in which they work is still matter of controversy and I shall pass it by, and for the same reason shall do no more than mention Contrast.

But there is one point which, before we go on, I must notice—the nature of “traces” or “residues” or “dispositions”. Associations are set up, and we say that these exist, but how can that be? Do the elements continue as psychical facts, and if not, do their relations remain somehow apart from them? Or what is the real nature of a general tendency? This is a problem which, in my judgment, falls outside psychology. To ask what a law is belongs to metaphysics, and such a question elsewhere can bring nothing but mischief. There are, so far as I know, four courses we may take, three bad and one good. We may follow the line laid down by Herbart, and force out an explanation by audacious assumptions and complicated fictions. And then we know where we are; as we may think we do, again, when we deny that a disposition is really psychical, and leave psychology for a region which I assuredly would not venture to call physiology. We clearly do not know where we are when we take a very common third course, and use phrases which may mean anything, to hide the fact that there is nothing distinct that we mean. But there is only one scientific course, to say plainly that what a disposition really may be, we neither know nor care. We have in science to do solely with events and their laws, events not being laws, and laws not being events, and we mean by a disposition that, because something has happened, therefore something will happen, *suppose that* something else happens and nothing interferes. And for this reason we cannot talk (except by a licence) of the blending of one disposition with others or with presentations. If no element is there in existing fact, blending has no proper meaning.

¹ When we get sensations possessed of a special community we can say of the stronger, It is the less *plus* some more. On the vexed question of ‘units’ I can say nothing here. The feature of domination in consciousness, or superiority general or special, becomes, of course, an idea, and we can so get the idea of without the reality of strength. The reader will see that I dissent partly from Lotze’s view as to strength (*Mikrokosmos*, i. 229, *Metaph.*, § 262). The whole question is very difficult, and would require a long discussion. The reader should consult Mr. Ward’s remarks (*Encyc. Brit.*, xx. 58), which, however, good as they are, still leave much to be desired.

We have now glanced at the field in which our improved Association has to develop the various faculties of the mind, and we have seen the motive powers used by the various combatants, and the heterogeneous conditions of victory. We have seen the cause of that disorder which at every moment can be found in the most regulated minds. We have now shortly to describe the beginnings of soul-life, and to exhibit roughly the means by which Thought in the proper sense comes to exist.

To give a picture of the earliest psychical condition, whether in man or the lower animals, is not my intention. Nor is this necessary for my purpose, which is to show merely in outline those steps which connect the origin and the end. The nature of the earliest stage of soul-life must be largely conjectural. It is likely that in some points our knowledge will be much increased; but we shall always be left with certain given limits within which we must construct a sketch that is probable but which we cannot quite verify. What we can be sure of is that any theory which begins with a derivative function, such as choice or memory, cannot possibly be true. The short account I am to give avoids, I hope, such sheer barbarisms. It is, I trust, at least psychologically possible.¹

In the beginning there is nothing beyond what is presented, what is and is felt, or is rather felt simply. There is no memory or imagination or hope or fear or thought or will, and no perception of difference or likeness. There are in short no relations and no feelings, only feeling. It is all one blur with differences, that work and that are felt, but are not discriminated. Hence to the question, Is this life discrete or continuous, our answer is ready. It can not (for the soul) be discrete, because that implies distinction. There is not only no good evidence in favour of discreteness, but there is this argument against it. Suppose that for an outside observer sensations, as a series or as a collection of series, happened in the mind, yet, for that mind at the outset, the separation and succession would not as such exist. If the whole were not unbroken it would at least so be given to a feeble mind, because the machinery required for the perception of succession, and of relations in general between sensations, is not yet at work and could not be at work. And, if I am told that this perception is entirely

¹ I must be allowed to refer once more to my *Principles of Logic*. Mr. Ward's excellent article (cited above) will be found in many points to support the view I have adopted.

simple and wants no machinery, I am afraid I must pass on, until my objector shows at least that he is not barbarous but has some acquaintance with the question at issue. There are then no several sensations for the early mind, and, whatever efficacy we may assign to relation and to change (a point which I omit), there is no change and no relation which comes as such to that mind. For itself it is not discrete, and hence also it is not explicitly continuous.

If now, turning from this point, we ask *what* is presented, that inquiry may have a good many senses. Do special sensations exist, and, if so, in what sense and how many? How do quantity and quality stand one to the other, and can we say that either, as such and specifically, makes itself felt? I intend to pass by these questions, and glance rather at the doubt as to pleasure and pain. Do these exist from the first, or must we say they come later? I do not know any way of deciding this problem. In the first place I am not sure if sensations are *now* ever entirely indifferent—if, that is, they are ever more than relatively neutral; and, if so, whether they are neutral as being wholly bare, or as having in them a resultant both of pleasure and pain. Again, if we suppose that some sensations are to us now indifferent, either in normal or again in pathological conditions, can we go from that to the conclusion that it ever was so when the mind was a simpler whole? Is there in short any good argument for the absence (partial or total) of pleasure and pain (or one of them) from the earliest soul-life? If I had that knowledge about pleasure and pain which some psychologists possess, I might perhaps settle these questions, but, as it is, I must conclude that it is safer *not* to suppose that at first pleasure and pain may be absent from sensation, or for the mind are attached to parts of the whole; and so I shall assume their presence. How then will these two sides stand to one another? In the first place a pleasure or a pain is not anything by itself. It is always something painful or pleasant, and that something is sensation (or sensations).¹ And in reply to the possible objection that pleasure and pain are not given at all, I must point to the facts. If we take “given” or “presented,” not as

¹ This is the place to take up the question of reproduction by pleasure and pain. Are they exceptions to the law that *all* elements move towards reintegration? In the first place, though I cannot show that they do act merely as pleasure or pain (because I do not know how to make the abstraction required), yet, on the other hand, I do not see how to deny that a mere difference in bare pleasure (supposing that to happen) might make the essence of revival as against no revival. It seems probable that pleasure in

implying a donation or even a relation to an Ego, but rather for that which is simply, and comes as it is, then in this sense pain and pleasure must be called presentations.

But the objection leads on to a further discussion. Is there anything at the start beyond mere presentation, that is feeling with the distinctions of quality, quantity and 'tone,' which *we* abstract from one another, but which at first come within one blurred whole which merely *is*? I feel convinced that there is nothing. I do not think, in the first place, that there is at the start any aspect of *self-feeling* (*Principles*, p. 456). True, the whole that is given, however poor that may be, does expand and contract, and feels pleasure and pain; but to *be* a felt expansion, and to feel it as such, are not the same thing. Until a core has grown together, against which the alteration can come as an 'other,' I cannot see how the aspect of self is possible. And I find no reason to suppose that at the beginning this internal group does, even in a rudimentary shape, exist. If the early soul is rich enough to afford this variety, yet the distinction is not a thing which requires no making, or can make itself at once and without machinery. Hence there is at first no self-feeling, even though we mean by that merely one aspect of the whole; and still less is there anything like a subject and object. I observe much confusion on this head. The distinction, we may hear, is not to be transcended. Now, if this is meant metaphysically, it is utterly irrelevant. Whether really and in the end all the contents of the Universe, my self included, are or are not relative to some subject, is a question on which psychology has nothing, and cannot have anything, to say; while to stop short of this question is to make no advance at all. But, remaining within psychology, I remark, in the first place, that in verifiable experience we occasionally have states where this relation of subject and object wholly ceases to exist. Still this is not the main point. For where experience does give us a reference to self, that self is not naked form. It has always a content, a concrete filling that varies but never is absent. Now, I would urge, if this reference exists at the start, what is the content of the subject? Is it likely that experience, at its poor and blurred beginning, does divide

general may as such have associations, and still more probable that pleasures in their union with qualities may have special associations, and may recall where the qualities alone would not recall. And the evidence seems in favour of pleasure and pain being recalled by qualities sometimes and not being *always* recreated. That being so, I feel bound to include them under the law.

itself into two parts with a relation between them ; and, if so, what fills each part, and what machinery can at once effect this distinction ? Until these questions are fairly met, the introduction of a subject into the early mind is not merely perhaps false, but is not scientific. The mere form of a subject could do nothing, and indeed for psychology is nothing ; while to give the Ego a concrete super-sensible character would hardly serve better. For if this character comes into given experience, then it becomes mere presentation that is mixed with the rest ; and if it somehow stays outside and touches only, so to speak, with the end of a relation the presented datum, then it falls outside empirical psychology. And with respect to Attention, or Apperception, or Activity, I have said something before (MIND No. 43) which I will not repeat. I should be loath to criticise the doctrine as, for instance, it has appeared in the writings of Wundt ; and, maintained as it is by Mr. Sully and, to a still wider extent, by Mr. Ward, it has become to me no clearer. Not only to my mind does it fail in part to be intelligible, but I find no adequate information as to the basis on which I am to suppose that it rests. The main point, I think, is this : if attention is not an event or a law of events, has it a right to exist in empirical science ? Is it not simply a revival of the doctrine of faculties ? And I am afraid to go on until I have pointed out the vice of admitting faculties. It is not merely their number which makes them objectionable, and it is a very serious mistake so to look at the matter. The principle is the same with one as with a hundred. In its worst form the faculty is a something outside that interferes by a miracle with the course of phenomena. I need not say that in this sense it is embraced by neither Mr. Sully nor Mr. Ward, for with both of them Attention has a law of its working. In its more harmless form the faculty acts by a law, but the objection to it is that in this case it is idle. If it is merely an expression for a way in which things do occur, or it is used further to mark a condition of their happening which is not yet known—then at its best it is a bad way of stating a law. And it seldom stays at its best. It becomes a phrase offered in explanation of phenomena beyond that field from which it has been drawn, which phenomena the mere law would at once be seen *not* to explain. I feel no doubt that Wundt has used his Apperception in this way, and little less that Mr Ward has partly followed the same line, and that Mr. Sully is at least somewhere on the brink of doing so (cp. MIND No. 40, p. 490). And I have thought it right to speak plainly because, if I am wrong,

that may lead to the explanation of a doctrine which assuredly needs one, and which, from the character of its advocates, cannot be ignored.¹

We have so far concluded that in the beginning there is neither a subject nor an object, nor an activity, nor a faculty of any kind whatever. There is nothing beyond presentation which has two sides, sensation and pleasure and pain. And for the mind there is no discretion, or even discrimination. All is feeling in the sense, not of pleasure and pain, but of a whole given without relations, and given *therefore* as one with its own pain and pleasure. So far as it is possible to experience this after contrast has done its work, we do so most of all in organic sensation. From this basis, the machinery we went through above has to bring out subject and object, volition and thought.

I am entering ground that should now be more familiar, and shall hence advance very rapidly. The first point we have to notice is the formation of groups. The condition of this is that in the flux of sensations there should be regularities. Without some identity in the given our experience could not start, and no Ego or faculty could give us any help. These groups will consist mainly of the sensations

¹ The appearance of Mr. Ward's article in *MIND* No. 45 since this was written, has not led me to modify it; but I will add a few words. Mr. Ward appears to me hardly sufficiently alive to the necessity of defining a term like "activity". If "activity" were wholly simple, then, of course, it could not be defined, but only pointed out. The question is, however, first, whether such a simple element does exist, and next, whether, if so, it answers to what we call activity. But Mr. Ward, I gather (*MIND* No. 45, p. 66), considers that activity contains a relation. If so, I would invite him to say more explicitly whether the terms of the relation are psychical facts, in the sense of being immediately experienced, and having quality, duration and intensity—or, if not that, what else they are. If Mr. Ward will do this, he will, I think, be convinced that the question is about more than words. I may be allowed to add that the question is hardly so much about the reality of activity as about its nature; and that my contention is hardly (as suggested on p. 66) that, *because* our perception of activity is composite now, *therefore* in attention there cannot be an unanalysable element. Activity has, it seems to me, a complex meaning now, and I have tried to show the psychical development of this complexity. Let that derivation be false and my contention is still this—Activity in its general use seems to have *some* meaning, and the man who uses it in psychology is bound first to say with what meaning he uses it. If he makes it an original constituent he is none the less called upon to state its content; or if he holds that it admits of no more than bare pointing out, he is bound to state this explicitly. And, in the second place, he should say *why* he applies to this unanalysable element the term Activity rather than any other word. Meanwhile I feel called upon to repeat that in general the present way of treating this word is little better than a scandal.

conjoined by reflex action on the environment; but of course the salient connexions in those points of the environment, which have thus become emphasised by pleasure and pain, will enter into the groups. The way in which these unions come to be made may, I think, be assumed, and what I wish to urge is that at first they are neither subjective nor objective, nor have aspects distinguished. They are felt wholes in which the features all run together. The next point is the formation within these groups of features accidental and essential. I, of course, do not mean that they are known in that character. What I mean is that connexions have degrees of strength. When in the struggle of the elements repetition of the pleasant has sometimes led to pain, when the object and the movement (sensations A and B) have had one sequel CD and another EF, then what has been uniform coheres and defies competition, as the variable and occasional hardly can do. We have therefore some groups weak throughout, and within every group we get aspects connected strongly, while others are attached feebly. This point is of importance.

If we leave these formal considerations and look at the content of our groups, we find a striking difference. There is one of our groups, or one set of features in our various groups, which bears a special character. In the first place it is always (more or less of it) there; in the next place it is connected with pain and with pleasure as no other group is. It is thus permanent, essential and emphatic, against the variable and that which in comparison is accidental. First, what are its contents? The core of them is formed by that bundle of feelings which always is given, and which later we know as internal sensations. And (to anticipate) round this core, and identified with it, comes the whole body-group of sensations. This (still to anticipate) becomes the representative of the group we call self. And (anticipating further) let us ask what distinguishes the body from foreign objects. It is this mainly, that any alteration whatever of my body (whether regarded as antecedent to or as sequent on other events) is connected with pain and pleasure. It is not, I should say, strictly true that any change of my body-group must be felt as painful or pleasant. What is true is that the exceptions are too weak to affect the force of the association. And further, the changes of the body-group bring pain or pleasure *immediately*. It is not so with other groups. These are painful or pleasant when in certain relations, and in others their character is turned to the opposite, or fails altogether. Hence the pain or the pleasure

becomes something not essential. Fire burns, warms and does neither ; an approaching body hurts or pleases, or again is indifferent. These other groups are not yet distinguished from the feeling they cause in me (this comes later); they are still one whole with my enjoyment or my suffering from them. But in comparison with the body-group their connexion is weakened. Because indirect and inconstant, it has failed to dominate. The body-group, upon the other hand, has grown together with that core of internal sensation which has been indifferent, either never or too seldom to affect the strength of the connexion.¹

Returning now from our digression we may have brought back some light. The foundation of the group which grows into the self is, and remains, those sensations which continue to be feeling in the sense of being one with pleasure and pain.² The real question is by what steps and in what degree and to what extent other groups are dissociated from this feeling-mass and qualify it by their contrast, and, on the other hand, what features are in various degrees connected with it. We have seen the way of dissociation. It lies in those repeated variations which by collision must loosen the feeling-aspects of some groups. On the other hand, we perceived how the direct and unceasing conjunction of the body-group with pleasure and pain made it inseparable

¹ In order to simplify, I have dwelt solely on pleasure and pain, because I think this the main point. If we may suppose them absent, I do not deny that a distinction of subject and object would be developed, but it would hardly be the same as that given now in experience. A complete account of the growth of our knowledge of our bodies would have, of course, to consider other points. The alteration of outer objects is not regularly a cause of further sensations (other than pleasure and pain), while the change of the body is so. This is illustrated further by double sensation, when two parts of the body touch. Again (at a much later date), change of the body is found a condition of the perception of fresh phenomena. From another side the body is controlled directly and regularly by the feelings and thoughts ; and outer objects, if at all, indirectly. I cannot pretend to deal here with the question fully and systematically. The problem of localisation I omit wholly, and, as to the perception of the extended in general, all I can say is that I do not think it essential to the distinction of self from other objects, though now it colours all relations. As to its originality, I think that clearly in its origin it could not have borne the *relational* character it now has, and could have been neither discrete nor (properly) continuous. But all the attempts which I have seen made to derive extension from what is quite non-extended in my opinion break down. The problem is unfortunately mixed up with metaphysical preconceptions, both as to the discrete nature of the elements, and again as to the intensive, not to say simple, character of the soul. On the subject of discrimination and the perception of relations, I shall be able to say something when we deal with voluntary Analysis.

² This is the main key to pathological states of the Ego.

from that aspect and one with its core of internal sensations. But at this point we must be cautious, or we shall fall into an error which is far too common. The feeling-mass is in the first place *not confined to the body-group*. It will contain more or less of *whatever in the environment has not been dissociated from itself*. The sensations from our surroundings, inclusive of other animates, are, certainly at first, and probably afterwards, more or less inseparable from our self-group. This is a conclusion which follows from our principles theoretically, and in practice certain facts are inexplicable without it. Nor is there anything to urge against it but the metaphysical prejudice of individualism. And, in the second place, the outlines of this group are not fixed, and they never become fixed. If I ask what is myself, what are in general those habits, those ways of feeling, thinking and acting, which make me what I am, the answer would vary with years. And it would vary in particular as from moment to moment the self contracts or expands with failure or satisfaction, and suffers from or possesses itself of the external; and at its limits I should not know what was part of me and what foreign. So that in putting forward the body-group as identified with, and representative of, the group one with feeling, we must remember that the body, neither at last *nor at first*, includes all the self; and that at its limits, and again later through nearly all its extent, the body becomes dissociable from self.

We have so far reached the stage where in the one mass of feeling (the unbroken whole of sensation and pleasure) groups are more or less connected, and where the greater part of these groups have been dissociated more or less from the feeling-nucleus, the core specially connected with pains and pleasures. We are still below the point at which consciousness¹ with its subject and object has appeared. This is fully reached first when a relation is perceived between the group identified with feeling and some features not identified. But this perception is led up to by a long course of hardening among cohesions and of collisions in the felt between the discrepancies. And, when consciousness is reached, it is not constantly maintained. It must

¹ I think, on the whole, that this is the best sense to give the word. But we cannot get rid of another in which 'to be conscious' means 'to notice,' and 'the unconscious' is that of which we are not aware. We may obviously be 'unconscious' of sensations which, for all that, make part of the object-group. Again, we must remember that in those states where the subject and object disappear, almost if not altogether, features of the object may sink back wholly into the stage of mere feeling.

come spasmodically and at intervals, with lapses between them, before it grows into a normal attitude of mind. The perception of the relation as such I will deal with lower down, when I touch upon discrimination in general. But what calls it forth is the practical collision between the feeling and a non-feeling group. After experienced satisfaction the object is approached with an expansion and excitement caused by ideal suggestion. If it resists and causes pain, there is a violent collision between the sensations, due (directly and through movement) to redintegration, and the discrepant outer group. And when both persist, the alternate expansion and driving in, of first one group and then the other, with the strong pleasures and pains which mark the struggle, tears in half,¹ so to speak, the mere unity of feeling which formed the battle-ground. What we have called the feeling-core has had to identify itself at once with its own contraction and expansion in regard to the outer group, and the task is impossible. Before experience and association had brought up and fixed expansion on the presence of the object, the task did not exist, because the self was driven in and there was an end of it. Now it *must* go at once two ways which are divergent, and from this effort supervenes, not the cessation of the struggle, but the first perception of it. I do not mean that consciousness could have been predicted as a result apart from specific experience. I mean that, feeling sure it has emerged, we can to some extent see how that emergence must have happened. We can feel the problem that pressed hard upon the struggling mind and understand how the result has partly solved it.²

I will, in passing, glance here at the origin of our ideas of activity and resistance ; and as the latter at all events implies the former, I will keep to activity. The general idea, I presume, is that of an alteration of A not taken as belonging to anything outside, but as a change of something beyond A which realises something which in A was ideal. This may be quite indefensible, but it is, I think, what we mean

¹ It does not, of course, really tear it, or we should get two selves indifferently to each other.

² I do not intend to consider here the influence of society and the collision with other selves, nor to date the origin of that perception. The discrepancy of the symptoms of pain and pleasure in another body with the feelings in mine no doubt operates strongly as soon as it does operate. It is, however, possible to exaggerate the importance of the social environment. To say, Without other selves no self *at all*, is surely going too far. It would be, perhaps, as true to say, If other selves did not exist, we should certainly invent them. But it is not necessary, and I think not permissible, in psychology to make either assertion.

generally when we use "activity". And when we come to the soul and the perception of our own activity, it is perhaps going too far to say that without an idea of the change no rudimentary form of that perception would come.¹ But in seeking for the minimum that must be apprehended, we cannot postulate less than a concrete and limited self-group, and a following alteration of this as against its limit. Further, the origin of this change is not to be referred to an other, nor do I think the mere absence of such a reference would be enough. The origin, as well as the process and result, must be felt to belong to the self-group, and for this the change must ensue, not only from the permanent character, but also from a present occasional feature. Now I do not deny the theoretical possibility of an ultimate state of mind holding all these constituents and so yielding the idea of activity on reflection. What I deny is the presence of one shred of evidence for the existence of such a state. That 'motor' feelings of any kind should supply such a complex seems to me quite preposterous. And what I cannot understand is how, without some apprehension of a concrete self with limits, and its change in time as arising from itself, anything like activity can exist *for the soul*.² And with all due respect for those who hold to (and some of whom build I know not what upon) the ultimate character of activity or resistance, I am left to conjecture that either they attach no definite meaning to these terms, or else some meaning which is foreign to them, or else that they have never made any serious attempt to analyse that which they set down as irreducible.

We have reached the knowledge of an object other than my self and in relation with it. We have to advance to the idea of something real by itself and independent of its connexion with my feeling-centre. We may deal with this briefly. The object recurs often, and, in itself and in its environment, is mainly the same, hence it seems permanent and identical. But, on the other hand, it is variable; and of its features some depend upon foreign relations, while

¹ The account of this matter (MIND No. 43, pp. 316 ff.), to which I must refer, should be so far modified. Further, I did not mean to convey that I myself took *desire* to be essential. My own view is opposite to this. I must excuse myself from entering further into Mr. Ward's criticisms (MIND No. 45), on the ground that they seem based upon misunderstandings which a comparison with the present article may remove.

² The soul may of course have been "active" long before *for the outside observer*. So used the phrase is harmless so long as it is felt to be unnecessary, and is merely *used*. Cp. MIND No. 43, p. 317.

others, because more constant, are not seen to be relative. And the relative part, because discrepant, belongs not to the thing; the thing (what is left of it) exists out of relation. The result of this advance is, of course, inconsistent, and raises problems which psychology has not to take up. There is no need to exhibit its progress in detail. There are emotive attributes which the object palpably has and has not. A sword hurts when it cuts me, but, when it cuts something else, it may give pleasure or nothing. What then has it got, and what does it give? Further, when at rest it certainly does not cut, and yet we call it cutting. Again, not only do things vary, but they vary and persist in spite of my pleasure and action, and, at least to some extent, are not changeable by me. To that extent then, up to which my changes do not alter them, they are real altogether apart from my existence. And, where language comes in, because for others as for me, and again because in some points *not* for others as for me, the object becomes partially free from us all. What is discrepant collides and sets at liberty the remainder which has not come into collision.

It is now easy to advance to the distinction between things and my thoughts about them. Disappointment reflected on brings knowledge of error, and language, of course, co-operates largely. Desire and expectation have to yield to the thing. They cannot alter it, and it decides whether they succeed or not. Whatever they may be, and whether they exist or do not exist, and when one man thinks this and another man that, the object is, and becomes, what depends on itself. If our expectations then are not to fail they must depend upon things—things not merely now and here, but in the distance and in the future. And the fact, more or less invisible, controlling our thoughts which without it are failure, has now been developed. This is the theoretical object, though the interest we take in it is still mainly practical.

But in thinking, it may be said, I am aware that I act; I *make* an alteration, and this is a difficulty. And for metaphysics, without doubt, a grave problem arises; but not for psychology. Objects are found to possess qualities regularly though not always; take for instance colours. Hence an object may be changed, though not in itself, and therefore only for us. Again, the thing for me is altered when I change my position, turn my head, close my eyes, or cease to touch with my hands. But it comes again as before, and changes regularly on my movement. Still, my movement did not change it because I find it as before. It could not change it, because in the interval the thing acts as it would act if its qualities were there. And for others again, inde-

pendent of my movement, the changes take place, and are no change for me. Hence these movements do not alter the fact but ourselves. It is the same with the invisible object of thought. That develops on my action, but I do not control it, as baffled expectation at once makes manifest. And so here, as before, there are actions about the thing which change only me. As the light shows us colours or darkness conceals them, while the colours in themselves remain what they are, so thought gives us, like true light, the nature of reality, or like twilight and mist presents us with appearance, or like darkness with ignorance. But the object is what it is, and, so far only as in action we suffer its control, does our thought remain true. As to the nature of the control our early reflection has nothing to say.

We have seen how thought is objective, but we have not yet reached the goal which, at the beginning, we set up. The object was not that which excluded my self, for we saw that my self is also an object, and we have to find how it becomes one. It is easy to see the way in which my body, first in some aspects and at some times and then altogether, can be distinguished from my self. And it is an object which obviously we are interested in knowing. So, too, my internal states, and my self, as the thing which possesses these qualities, come naturally to be thought of. The one process, that combines and sunders through individuation amid discrepancies, goes on working to the end. The feeling-core with its early and its acquired constituents is a hard thing to reach, but the interest is unceasing. If this and that cannot really be the thing itself which feels, what in the end can it be?

Thought has an object and subject, but these are not fixed compartments or parts in the self. Any process, as we saw, which preserves identity of ideal content is thought and is objective. But why an *object*, we may insist, since this means *not* subjective? It is an object, we reply, because it is distinct from and regulates other psychical movements, and these by contrast are subjective. Even in the highest self-consciousness where my self is the object, the distinction persists. It is not possible to have a state where, beyond the content of the object, there are not psychical elements which exist and interfere and need constant control. Pure self-consciousness as a state where perceived and perceiver are psychologically at one, and where existence no longer jars and struggles with content, is no actual condition. There is always something to control, and in this sense thought remains for ever objective.

But, we shall be reminded, not only does thought exercise control, but it does so consciously. It has an end and a standard, and this calls for explanation. We may ask first how thought comes at all to be critical or 'normative'; next, in what the standard consists; and in the third place, *why* it is thus and not otherwise. (a) Since control by the object is found satisfactory, the idea of that control of course interests and moves, whether always as the object of desire I will not ask; and the character of this control of course comes to be generalised, and so moves in a more and more abstract form. (b) What in the end is this character, can not be discussed here at length. We found it to consist in identity or individuality of content. (c) Why it is thus and not otherwise, is a difficult question. We can see at once that, if the object is either changed for another or taken incompletely, there will be practical failure. And the mind, it will be urged, has simply followed this line of most pleasure and least pain, and its experience has cohered and is perceived as an axiom. On this I wish to say first that an axiom or a postulate, or a criterion in general, if we regard its *validity*, falls outside psychology. For that science it is merely a general character which moves, which brings rest when successful and unrest when defeated. We are confined simply to the origin and nature of an axiom as it comes into the course of psychological events. Now, if this standard has been produced merely by what has happened to succeed, it seems strange that its principle should be precisely what operates at the start and in the earliest association. Is that only a coincidence? Or shall we suppose that the type of our first rudest movement has also somehow resulted from natural selection? Perhaps so, but I would remark that, unless we will be resolute and make the nature of things result from a struggle and a survival among bare possibilities, then an account of this sort cannot go back for ever; and psychology, I should have thought, has to make its start from *psychical* ultimates. We must begin then without anything like mental association, and try to show (I suppose) how its laws have been made by conjunctions of presentations, which gave pleasure and pain (or at any rate succeeded or failed) and somehow led to these laws. I cannot here criticise such a doctrine, and will say only in passing that if it understands itself it will make psychology an appendix to physiology. I am contented with the view that for psychology the law of individuation is an ultimate, and that this law has succeeded, because it answers to external events in a way which to psychology is itself once more an ultimate, and that, thus succeeding, it becomes an end and a standard for thought

and feeling and will, according to the special conditions of these processes.

If we ask further as to its connexion with pleasure and pain, and raise the doubt whether our 'norm' satisfies directly and in its own right, or has now got pleasure conjoined with it because circumstances connect pleasure with success, and *it* has somehow happened to succeed, I cannot here answer fully. But I see no reason to doubt that the realisation of our principle is pleasant directly, just as much as when our self succeeds against the environment. And I think an inquiry into the conditions of pleasure would show that in the main those results please which are the same in character with the result of our principle. It will be the feeling in both cases of one self-realisation diversely produced.¹ To ask a question beyond this would be to enter metaphysics.

We have now pointed to the essential feature of thought; we have seen the machinery which works in all psychical processes; and we have hurriedly shown how from a basis of mere feeling this machinery develops the function of thought with its subject and object. And, did space permit, we could easily complete and verify our explanation by exhibiting volition and emotion, in their contrast to thought, as other developments by the same machinery from one single foundation. But there are theoretical activities which have not been explained, and I must endeavour in what remains to indicate how these confirm our previous account.

There is a difficulty which kept me for some time at a stand. Thought is certainly a function of analysis and synthesis, and the synthesis is plainly an application and development of Contiguity. But what is the origin of analysis? True (as I have pointed out in my *Principles of Logic*) the synthesis must analyse, since the competition of different redintegrations forces elements apart while holding them together. But take a case where I set myself down to discriminate, where I say to myself, I will investigate this object or analyse this sensation. We can indeed see how synthesis largely assists us, but in the end there will be something which can not so be explained. And the true explanation is that the idea of discrimination works further by blending. I will exhibit this briefly, beginning first with

¹ The conditions of pleasure can, I think, be reduced to harmony (including pureness) and expansion, answering to consistency and completeness in knowledge. But whether, as in knowledge, the two will fall under one head is not a simple question, and I shall reserve my opinion for another opportunity.

the involuntary perception of difference, and then dealing with analysis.

As I have remarked above, discrimination is in one sense inexplicable. We are unable to make the transition from the fused to the relational condition of mind, in such a way as either to see *how* this particular result did come, or to feel simply that it must be so and that no further explanation is required. But the result is explicable in this sense that we can retrace the collision which goes before it, and see how it contains the warring elements in solution. There are two thoughtless extremes against which we must guard. In the first, sensations are different, and that is distinction. In the second, distinction supervenes, and that somehow makes difference. Each has one side of the truth that (explicit) difference implies distinction, and distinction rests on (undiscriminated) differences. The first error forgets that my sensations may be different and I not know it: while the second does not reflect that the very best faculty wants some machinery; and that, if without due cause it wildly throws out relations, then it explodes at haphazard and its missiles stick by pure chance.

If we had discrete presentations in series or together, that would not give even the faintest beginning of distinction. If there is to be a change, it, I hope, begins to be a truism that something must change, and, if so, *therefore* must endure. If we are to feel change, then in feeling some element must be continuous. It is of no use to bring in the Ego, for the mind in general can do nothing in particular or at all. If the identity is to work it must be determinate and special; but this offers no difficulty. Our presented whole from $X(abc)$ becomes $X(abd)$, and gives identity with diversity. How will this go on to work? For mere shock and collision, we must remember, may shatter wildly the contents of our mind and cause pain and unrest; but to have collision in one's mind, and to feel it as such, are hardly the same. Mere invaders that seized on us and dropped us in turn, that fought furiously in our precincts and well-nigh pulled us asunder, would be nothing to the purpose. We feel the struggle that we make, and by *we* I mean simply our presentations. The collision is made when, with $X(abc)$ — $X(abd)$, the persisting $X(ab)$ has two differences, *c* and *d*, either of which it can restore by Contiguity¹ against the

¹ Where there is an after-sensation the mind has a little less to do. But to take the existence of an after-sensation as being by itself a solution is, of course, quite thoughtless. Not what it is, but what it does, is the point to consider, and, if it acts, it acts by ideal redintegration on the basis of partial blending.

presence of the other. Itself therefore, when one of these elements is banished, reacts, and bringing in the other produces a collision located in one point by a basis of identity. Again, if the two groups are there together, their identities, $X(ab)^1$, $X(ab)^2$, blend, and so force c and d to struggle for existence. It is this conflict of the soul against itself which begins to be felt as difference.

The very lowest perception of change implies a basis of identity, with incompatible differences in and through which that struggles against itself, and so gets for a moment the feeling of relation. The same process, developing itself under special conditions, results in the perception of various relations in which the two elements in their connexion come to consciousness at once. These special relations present us with a number of difficulties, made more difficult by the fact that our space-perception now qualifies and overlays the whole field. I can but emphasise in passing the essential point. There are *no* qualities which in themselves are incompatible. They may be naturally incompatible in the sense that our machinery is not able to present us with both of them together, under some conditions or at all.¹ They are *all* again ideally incompatible, if we try simply to identify them (without blending); and *all*, on the other hand, reconcilable, if we distantly couple them by means of relations. They are not really reconciled because the differences are all there, and the relations are not a harmony of these opposites, though they enable us to get round and to ignore the collision of unity and diversity. And if thought is a faculty of relations, it is thus for ever condemned to inconsistency and makeshift. But what I would emphasise is this, that the one law of Individuation brings on the conflict, and then (practically though not theoretically) disposes of the problem by means of a relation. This is why 'contraries' are most hostile, because the more special the identity the severer the struggle, if that struggle arises. But these forms of relation, which make experience what it is, are not (so far as I see) to be deduced from first principles. We are unable to reconstruct their specialities, though the necessity for them and their main character may be understood. And what we find everywhere, when elements are held apart and in relation, is a basis of identity which ideally connects them—even though that basis be not special and now appear to us no more than their co-presentment as members of one total given state of the feeling-centre.

¹ I cannot enter here on the difficult question as to the part played by quality as distinct from quantity. The view that in *all* presentations there is a common basis admitting of degrees would have considerable bearing here.

In discrimination we get a result of variety in unity, and when we go about to distinguish or purposely analyse, what happens is this. The result of distinction becomes an idea,¹ and, when we will, we have that idea over against a presentation. I have an object A and the idea of variety, the latter present now as the idea of a variety in A, call it A(bc). And this variety may be general, we may want to make any distinction that we can, or it may be more or less special, call it Ay(bc). Now how will this idea work? It will work first of all obviously by means of Contiguity. Striving to particularise itself the idea of itself accomplished will restore anything connected with that accomplishment. This is the way in which contiguity is known to find means for an end, and there is no need to dwell on it. The idea of A somewhere exhibiting variety leads to restless movement about the whole field of it; the idea of its showing this or that variety leads to particular search, as when a beast surveys a region for its prey or its enemy. And so far the idea of distinction working by contiguity explains analysis.

But there is another side which we noticed when above we spoke of blending, and which this latter process alone, I think, will make clear. When I scrutinise the object of sense or of thought, I find that, on my attention and the presence of my idea, its features grow diverse. It is as if, so to speak, my will had served as a microscope, as if I were turning the screw and the detail were coming out. And here doubtless, working side by side with contiguity, we have the process of fusion. In the first place the idea gives strength to answering elements (MIND Nos. 43 and 46) which were there and were not noticed, or which come there on fresh presentation when their supports are strengthened. We may think here of the perception of obscure sensations, or again of the action of fixed ideas and moods on the environment. But we have a second case where the variety is *produced* by our wills. We may illustrate this by the play of our thought or imagination. I think of a man, and then of a hundred men, and then further I group and divide these hundred men at my pleasure and, as we say, quick as thought. We have blending here which (with contiguity) transforms the picture before us. The suggested features, it is true, do not strengthen given detail,

¹ Cp. my remarks on Comparison (MIND No. 41). Mr. Bosanquet criticised these (MIND No. 43) in a way that I found very interesting, and I admit that I was wrong in making alternate subsumption *always* necessary. In some cases we do without it, but in others I think this is certainly not possible. We cannot always go from A to B with a point of comparison. We may find that first in returning from B to A.

and so far there is no blending. It is the *basis* of the suggestion which is presented also in the picture, and, by blending, that basis overpowers what is given, partly drives off its detail, and substitutes in part or altogether the detail of the idea. I am far from wishing to underrate the work done by redintegration, but though that work is essential, yet in some respects, and particularly when volition comes in, it is not enough. In the use of blending we must of course see that there are elements to blend; but with that precaution our psychology would, I think, find it a key to unlock several puzzles. The failure of psychology with regard to the creative imagination can, I think, in part be so removed. And at all events, in my judgment, blending explains the origin of voluntary analysis.

There are other difficulties which, no doubt, will occur to the reader. If I had space I am confident that I could deal with most of them; but in conclusion I can do no more than sum up the distinctive features of thought. Thought is first not the whole psychological process. There are always other elements which compete with it for existence within the subject. And so thought is objective, not because its content excludes the self, but because it has to control tendencies which fall outside itself, and solely in the course of my psychical events. Thought is 'normative,' because its process has a standard and end. The result produced by that movement becomes a principle which itself moves, first unawares and then with slowly increasing self-consciousness. And this end struggles both for room to exist within my mind, and strives also against its own defects and failures. Thought once more is "necessary," because its end is able to compel. Within itself one element is because of another, and outside itself it can force competing tendencies. And it is "universal," assuredly *not* because always abstract, nor again because *always* possible for more men than one, but because its connexions are independent of this or that man's private liking, and transcend the immediate deliverance of sense. And it is an obvious "activity," because succeeding it expands the group of the self, and that expansion in its origin and its result is attributed to the subject. Its end, Individuality, must gain all its material from the flux of presentation, but from the very start it ignores 'thisness'. Irrespective of the moment's confused deliverance, the content it takes up is applied to qualify every other context. That what is must be and is eternal, is the principle of all our psychical movement; and ~~the~~ builds up not thought only, but emotion and will. Thought, however,

in its character diverges from these. It cannot make presentation, and, where thought is volitional, where its idea, that is, produces its content particularised in psychical existence, still thought and will are different. To the thought, realised as thought, its mere psychical existence is something necessary, but still *per accidens*—while the essential end of will is reality within the series of psychical events. And, as thought cannot make phenomena, it contents itself without them, and is therefore symbolic and not existential. And, aiming at a totality which events never give, it converts their degradation to ideal uses, while it builds its own world out of them, and lives both in them and apart. And building piecemeal, as it must, it becomes relational, and is free to choose its own relations. Its individuality could not be perfect until all its distinctions were harmonised in one system; and it is therefore driven to an infinity of analysis and synthesis, striving to include all variety within one identity.

Thought, we may say, is the process which aims at and is controlled by individuality, an end, however, to be realised not in existence but solely in content. And, as against will and feeling and the perpetual flood of incoming sensations, it is the process controlled by the identity of the *object*. But, if we ask whether thought is wholly self-satisfied, if it feels not only its internal defects but its estrangement from existence and from feeling and will, if it does not long for a fuller, a more concrete, completion, in which *as thought* it would no longer survive—we must go elsewhere for an answer.¹

¹ I feel it right not to omit the "Law of Duality". I made its acquaintance some years back when engaged on Logic, and was quite content to ignore it. Now that Mr. Ward has endorsed it, I think I ought to say briefly why I have never accepted it. (1) In the first place I cannot see how the Law comes from Apperception or Attention. The derivation may have been accomplished, but I am quite unable to follow it. (2) The arrangement of thought's content into pairs, and into wholes whose materials throughout are subordinated by couples, is, I think, not always fact. I have elsewhere (*Logic*, bk. iii., pt. i., cc. 1 and 2) pointed out cases which I at least could not reconcile with this Law; and, until I see that done, I must be allowed to doubt if it is possible. (3) So far as the Law expresses fact, it seems to me obviously secondary, plainly derivative. Thought is compelled to be relational, to move by the aid of relations and piecemeal; and, as with relations the minimum is one with two terms, we may say, if we please, that thought's process, *so far as it is confined in its movement and its result to relations*, is in this sense dual. (4) I think that, if we must have a faculty, one of Discrimination would be far more useful than Attention is. The attempt to explain, not Duality by Attention, but Attention by Duality (as Distinction or Comparison), has, I should say, been the more successful of the two. I can, of course, accept neither. (5) Duality *might* mean that in the end thought is ruled by the category of subject and attribute. If so, that statement would require a thorough explanation.

III.—KNOWLEDGE AS IDEALISATION.

By Professor JOHN DEWEY.

THAT the word 'idea,' as commonly used, is about as ambiguous a term as could well be invented, is an old story. I need here to call attention only to two connotations. It implies *existence*, and it implies *meaning* or the content of the psychical existence. When we speak of the idea of virtue, we may mean either the 'idea conveyed' by the term, its significance, or we may mean the particular psychical existence, which occurs now and here in experience, and stands for the meaning. But this double connotation is not confined to abstract terms. It holds equally of the most definite perception,—say, mine of my pen as I write. There is the idea 'in my mind,' an existence coming after many ideas, and before many others; a psychical existence which is a unique, unshareable, irrecoverable experience. What constitutes it we need not here inquire, though our psychological research goes to show that it is a clustering of sensations, visual, muscular and tactile, due to the immediate stimulation of my nervous system. *Similar* stimuli may occur again doubtless, but the present existence endures only while the given stimulus is actually there. How stands it with the other connotation of the term? It is evident that here we are dealing with meaning or significance—all that would be included in the definition, say, of pen, plus the fact that it is now present, which is, after all, part of the meaning, and not of the existence. To state the whole matter simply, every psychical state or 'idea,' in Locke's sense, is at once sensation and interpretation of that sensation or meaning conveyed. It is sign and signification. We do not go here into the theoretical justification of the latter element. We do not ask whether there *is* any pen really there, or whether, if there is, our idea of it corresponds to reality. We merely state the fact that in every psychical experience there is the psychical existence, and there is what this existence stands for to the mind. It is an undoubted fact that the meaning *seems* to be objective, permanent and universal; that the idea of existence, in other words, seems to us to report a reality which is there, aside from our particular mental state, one which is equally there for my intelligence at all times under the same conditions

and for all intelligences. This apparent report is part of the complete psychical fact, but we do not now ask whether it has any right to be, or whether it is an illusion unconsciously superadded to the legitimate content of the fact. Recognising that every psychical fact does have these two aspects, we shall, for the present, confine ourselves to asking the nature, function and origin of the aspect of meaning or significance—the content of the idea as opposed to its existence.¹

To develop what is meant let us take Locke's favourite example—a perception of gold. If we ask what is psychically present, by way of immediate existence, we shall find that it is only a group of sensuous feelings—some strong, some faint. If we inquire further, we find that the stronger ones are due to a direct stimulation of some organ of sense, while the fainter are due to the indirect stimulation of some central organ. If we simply look at the piece of gold, there are the vivid sensations of colour and muscular tension only; clustered about these may be less vivid feelings of contact, perhaps of slight metallic taste and odour. But it is a mistake to call these latter feelings ideal, and the former real. One class is just as real as the other; the only distinction is one of strength. It is quite true that the weaker feelings may be found upon examination to be due to previous stimulations, and to be due to connexions in the brain previously established, so that now a direct peripheral excitation serves to set up a change in some connected part of the brain and awaken sensation. But as existences, there is no difference in the feelings, whether peripherally set up or centrally excited. The stronger one, as existence, does not report that it is due to present direct stimulation; the weaker one does not report that it is ultimately due to past stimulations. This is a matter of interpretation, and even as interpretation it does not enter into the *perception* of the gold. I repeat, as existence, we have only a clustering of sensuous feelings, stronger and weaker.

But what is perceived is *not* a clustering of feelings of any sort. It has taken centuries of scientific psychological observation even to ascertain that sensations of these kinds are involved at all: so far is their presence from being an element of the content of perception. What is perceived is the thing gold, with its various properties, which the sensations stand for. And in our anxiety to get at meaning, to

¹ In thus calling attention to the distinction of the two senses of the term 'idea,' I am, of course, but repeating what many others have said—among them most clearly Mr. F. H. Bradley, in his *Principles of Logic*, pp. 5 and 6.

find out what is symbolised, we actually neglect utterly that which is the symbol, the psychical existence. What is perceived is, in short, significance, meaning. The amount of perception one has, whether as a babe or adult, as layman, or as chemist, is precisely the meaning that one finds signified by one's sensations: the *sensations*, as such, may be precisely alike in the four cases. Perceiving, to restate a psychological commonplace, is interpreting. The content of the perception is what is signified.

Now, it is to be noted that the meaning constitutes for us the whole value of the experience. As a physiological fact, the occurrence of nerve tremors of some sort may be the important thing. But as a fact of human experience, the important thing is that the experience has significance. It means something to us. It reports something to our intelligence. Absolute nonsense and nonentity are synonymous as matters of conscious experience. It is true enough that without the idea *as existence* there would be no experience; the sensuous clustering is a condition *sine qua non* of all, even the highest spiritual, consciousness. But it is none the less true that if we could strip any psychical existence of all its qualities except bare existence, there would be nothing left, not even existence, for our intelligence. Even the fact that there *is* an experience, aside from *what* it is, is not the sensation itself; it is the interpretation of the sensation. It is part of the meaning. If we take out of an experience all that it *means*, as distinguished from what it *is*—a particular occurrence at a certain time, there is no psychical experience. The barest fragment of consciousness that can be hit upon has meaning as well as being. Take away the meaning, and consciousness vanishes.

We may seem to be dwelling needlessly upon the veriest truism of psychology—that its subject-matter is conscious experience, for that is all that is really meant when we say that significance constitutes the worth of an idea. But, perhaps because it is such a truism, there is no fact so often overlooked. The fundamental distinction between physical facts and psychical facts is not that the former exist in space, the latter in time, or any other specific distinction of mode of occurrence. It is that physical facts as such are facts of existence; psychical facts are facts of meaning. Physical facts have meaning, but they have it as psychical, in relation to intelligence; psychical facts have existence, but the existence does not constitute their express value in human experience. An idiot has as many ideas, *quod* existences, as Shakespeare; the delirious patient has, in all probability, more in a given time than his physician.

What then is the nature of meaning, of significance, of that which is conveyed by every fact of consciousness, and which constitutes the value of that fact? It is, of course, a mediate factor; it is due to inference. In passing, I must commend this statement to those who are telling us that the only realities which we can ultimately admit are those which are immediately present in some state of consciousness, and that we must reject all inference if we are to get the fact. For my part, it seems that when the mediate element is gone, meaning is gone, and consciousness itself disappears. If someone takes away from me all the inference contained in a fact, hunt as hard as I will, I cannot find but that he has taken with him the fact also. He may have left me with nervous tremors in my brain, but all significance, *i.e.*, conscious experience, is gone. So far is it from being true that we know only what is *immediately* present in consciousness, that it should rather be said that what is *immediately* present is never known.

But we must leave these general statements and come to particulars. That which is immediately present is the sensuous existence; that which is known is the content conveyed by this existence. The sensuous material is of worth only as it is a sign; it is a sign only as it signifies or points out meaning. This meaning is present as mediated. It is not there as existence; it is there as pointed towards, as symbolised. If we owe nothing else to what is called physiological psychology, the experimental result reached by Helmholtz, that we always neglect sensations, or pay no attention to them as existence, in behalf of the meaning conveyed by them, gives physiological psychology a higher scientific stand than introspective psychology has yet attained; for introspective psychology is always descriptive, while Helmholtz's generalisation explains. It is true, for example, that every experience of tone is complex, containing the fundamental and the partials. Yet we are entirely unconscious of this complexity, which as matter of sensuous existence is the all-important thing. Why? Because this complexity is taken solely as a sign of the instrument to which the tone is referred—human voice, violin, piano. We interpret the various combinations of sensations as signifying this or that object. We are equally unconscious of the nature of the sensations in themselves, and of the process we go through. Psychical result or significance is all intelligence cares for. Starting-point and way to this result are swallowed up in what they symbolise. This explains 'unconscious cerebration' on its psychical side. Processes,

whether of perception or of reasoning, are of no account to intelligence except as they lead to meaning. Perception is well defined as unconscious reasoning. And as such it illustrates the way in which the process loses itself in the result. The process is nothing *as* a process, or psychical existence; it is everything in what it means or symbolises. In reasoning proper, the processes are of some account to us, because we know that upon variations in the process depend variations in result. The matter is more complex, and we go through it step by step; but even here we do not pay attention to the process as an existence. We simply take one *meaning* at a time, and then go on to the next meaning. Reasoning is the way in which we separate and unite meanings into one complex meaning. As our power to reason becomes developed, and the subject-matter becomes familiar, we cease considering the various subordinate meanings in their relation to each other. We grasp the meaning as a whole, as we do in perception, and reasoning becomes, as we say, automatic or intuitive. Conversely, when we are in doubt in perception as to whether the result is genuine or is an illusion, we do pay attention to the process. We repeat the process, analysing it into its steps, to see if we have drawn a correct inference. So, when we wish to decide whether that red colour is really on the wall or is due to a purely organic affection, we move the body or head, and observe results, and draw our inference accordingly. We often separate the various steps in perception, just as we often consolidate them in reasoning; but the separation and the consolidation are always of meaning, and never of the psychical process as an existence.

But let us consider another example or two of the fact that we neglect sensuous *basis* and regard meaning alone. Everyone knows that we have two retinal images of an object in every case of binocular vision; that is to say, we have two complete sensuous outfits. In the vast majority of cases, these two sensuous bases are slightly different; in one case in a thousand they may be alike. Yet we are ordinarily conscious of but one object; in some cases, those where the retinal images are similar, we can be conscious of but one, do what we will. I know of no more striking illustration of the fact that sensations, as existences, are nothing for us, while sensations in their symbolic function are for us everything. The sensations *mean* but one object, and, do what we will, we *see* but one object. The duality of the sensation is nothing for us. But we neglect the greater part of the case, when we speak of the matter as

if it were confined to a few special cases of eye and ear, and as if in these cases the sensations, as existences, were only double, or triple or quadruple. In fact, as existences, they are indefinitely multiple in every case. As I touch the table, how many distinct sensations do I have? As the ray of light affects my retina, consider what a chaos of sensations is stimulated. I may remark incidentally that a large number of the psychologists who have occupied themselves with the problem of space-perception do not seem to have realised the elements of the problem. They first talk as if the problem were: How to get space-relations out of sensations, as existences? and secondly, as if the problem were: Given isolated sensations as equivalent to isolated points in space, to tell how these come to be connected with each other in complex space-forms? But the problem in the first place is: How do we *interpret* sensations into spatial meanings? and secondly: How do we interpret *some* sensations as isolated points and *others* as connected bodies? We do not start with separate points which are to be combined through the medium of motion, or in any other way. The separate point is as much an inference, an interpretation of the sensation, as the connected line, surface, or solid. Our experience of one is built up along with that of the other. Sensations, as existences, in spatial perceptions as in all perceptions, are naught; sensations, in their symbolic quality, as inference is put into them and they become meaning, are all.

Our fundamental position is that sensation, as existence, and the process, as psychical occurrence, by which sensations are connected, never enter into knowledge. Knowledge is both the sensation and the process in their significant or sign-bearing quality.

But what is the sense in calling the sign-borne content inferential, and in separating it from the sensational basis as immediate? The general ground is the fact that the sensuous clustering is all that is present by way of immediate existence, and it is convenient to have a term to express that which is present by way of being signified or symbolised. The sensuous basis stands for, conveys to intelligence, the content of the experience, and the meaning is present only as thus represented. The sensations, as immediate existences, have no more meaning than letters of the alphabet or than vocal noises. The meaning is read into them or out of them, as one may prefer to state it. But more specifically, this element may be called mediate or inferential because it is present as the result of a process

of reasoning. There is no need at this time, I suppose, to do more than state the fact that every perception is a judgment based on an inference. It is indifferent to the sensation whether it is interpreted as a cloud or as a mountain ; a danger-signal, or a signal of open passage. The auditory sensation remains unchanged whether it is interpreted as an evil spirit urging one to murder, or as intra-organic, due to disordered blood-pressure. The result is arrived at by a process of inference. It is not the sensation in and of itself that means this or that object ; it is the sensation as associated, composed, identified, or discriminated with other experiences ; the sensation, in short, as mediated. The whole worth of the sensation for intelligence is the meaning it has by virtue of its relation to the rest of experience. Since the rest of experience is not and cannot be present as so much immediate existence, we may well call the element which gives any psychical fact its value mediate.

We have just been introduced to some terms which, indeed, it has long been difficult to keep in the background ; terms like 'identification,' 'discrimination,' 'relation'. For this mediate element is precisely what we mean by relation, and the processes by which it is got at, and read into the sensation, are those of association and comparison. It has long seemed to me a remarkable fact that the later writers of the specifically British school of psychology, led by Mr. Spencer, recognise this truth and yet do not think it necessary to revise their fundamental notions of intelligence. I can account for it only on the supposition that they do not attend to the double sense of the term 'idea'. Their general theory of intelligence, as at bottom sensational, requires that it be the sensations as existences which are compared and related. Their theory, as it actually works, is that the sensations in their intellectual quality, as significances, are compared and identified. Their theory as they employ it for purposes of explanation is in direct contradiction to their theory in its fundamental presuppositions. If all intelligence is a product of psychical existences, called sensations, plus their association and comparison, no amount of association and comparison will ever give a result which has meaning for consciousness. Strictly speaking, it is impossible for such processes to occur. But if the comparison of sensations does result in significant experience, there must be a certain intellectual quality in the sensations not due to their properties as bare existences. A relation of identity is not a sensuous skeleton which runs through psychical occurrences and ribs them together. It is identity of meaning ; permanence, in short, of intelligence.

And discrimination is not the introduction of unlikeness between ideas as occurrences in the psychical life. They are already as unlike as they can be, each being already a unique distinct existence: as Hume says, every distinct idea is a separate existence. Nor can it mean recognition of this unlikeness of existence, except in the sense that it is recognised that the two psychical occurrences do not mean the same. They may *be* unlike, but we should never know they were did we not discover that they did not point to or symbolise the same intellectual content. They must mean difference of times at least, and conscious experience of difference of times is just as much a matter of interpretation of sensations as recognition of spatial differences is.

Wundt has shown clearly enough, as it seems to me, that association is finally a function of attention; but, not to confuse ourselves with terms, let us take a simple example. Of all the sensations which, as existences, are presented to us at any one time, how many come into consciousness together? To put it in the old-fashioned way, how many ideas can we be conscious of at once? To answer the question in this form: Of idea in the sense of meaning, we can be conscious of but one; of idea in the sense of existence, or psychical occurrence due to separate stimulation, we may be conscious of an indefinite, limitless number. Just as many as can be made to convey one meaning, just so many may be comprehended in one idea. If we make, for the sake of example, the assumption that the universe is a unity, it is theoretically possible to grasp every detail of the universe in one idea. In fact, it must be so grasped, for the unity of the world can only mean that it ultimately possesses oneness of meaning.

In any given complex of presentations, therefore, just as much will be selected and united into a conscious experience as harmonises in meaning. The astronomer cannot attend to the ticking of the clock and to the passage of a star at the same time, because they are *interpreted* in two different ways. Were they interpreted in the same content of significance, they would be, *ipso facto*, members of the same experience. To borrow Wundt's illustration, if the eye sees a falling rod at one place, and there is a noise made at a slight distance, and if the noise occurs regularly after the rod falls, although there is no connexion between them, the sight of the rod and the sound will be united in the same idea. So ineradicable is the mind's bent after meaning, that it will force it, if it be possible. In case, however, the noise is not harmoniously related to the fall of the rod, the mind will have to alternate between the two facts. They cannot both be pre-

sent in the same consciousness. Their unlike significance makes them, by necessity, two distinct consciousnesses.

Unity and difference, relation in short, is always a matter of significance, of content for intelligence, and not of psychical existence. When we say then, as Mr. Spencer and all the later English writers do say, that a sensation is nothing until it is identified and discriminated—that is, brought into relations of unity and difference—it is necessary to remember that the identification and the discrimination are elements of meaning, of relation to intelligence. The sensations, or existences, never unite themselves, and never differentiate themselves. But sensations, as they exist in conscious experience, are always united and differentiated. What is this but to say that intelligence is necessarily involved in every sensation as known, and, therefore, that it is impossible to derive intelligence from any combination of sensations? Let us remember two things: first, a sensation is not knowledge until united and differentiated; secondly, these processes have absolutely no reference to the existence of the sensations, but only to their significance, to the meaning conveyed by them. Can we avoid drawing the conclusions: negatively, that relations—that is, connexions of unity and difference of meaning—can never be produced by sensations as psychical existences; and, positively, that the factor of relation—or ideal significance—is necessarily required to make sensations elements of conscious experience?

This brings us to the fact that relations are thoroughly *ideal*. Lewes frequently noted that science is a process of idealisation, but he seems never to have realised either the true import of idealisation, or the fact that all knowledge, perception included, requires the ideal element. Idealisation is not a process of departure from the material presented in perception, for this material is itself ideal. The idealisation of science is simply a further development of this ideal element. It is, in short, only rendering explicit and definite the meaning, the idea, already contained in perception. In the act of perception we do not realise anything like the whole meaning of what the sensations convey; our interpretation is fragmentary and inadequate. The other processes of knowledge, the so-called faculties of memory, conception, judgment, self-consciousness, &c., are only progressively fuller interpretations, as each introduces some ideal factor—that is, relation—neglected by the previous. Memory, for example, simply makes explicit that ideal relation of our present experience to past experiences, which is involved in every perception, and which indeed makes it what it is,

although in the stage of perception we are not conscious of this relation. Self-consciousness, again, is simply the conscious recognition that the ideal element *is* involved in all knowledge together with what is implied in this statement. Self-consciousness is the idealising process of all knowledge continued till it becomes conscious of itself. But these are aspects of the question that must now be deferred.

We have to ask what is the especial ground for calling the element which makes knowledge significant an *ideal* element? The answer in general is that this factor is *ideal*, because it is not present by way of immediate psychical occurrence, but as meaning. It is significance; and this is *significance*, presence as symbolised. It is convenient to have a term to denote what is present in the way of meaning rather than in the way of existence, and the term '*ideal*' just meets the demand. It meets it negatively in suggesting that this factor is not one of space- and time-existence and occurrence; it meets it positively in suggesting that it is due to intelligence.

This is the point which has now to be shown, and shown not through an examination of the logical *conditions* of experience, but through a psychological inquiry into its *facts*. Whence come the ideal elements which give to experience its meaning? By what process do we interpret sensations so that they become significant to us of objects and events in space and time? These questions are simply the fundamental questions of psychology, and can be answered only by a complete treatise on psychology. Nothing but very general considerations may be expected of me here. The answer which is ordinarily given to the question, the one we have just seen given, is undoubtedly the correct answer. Sensations get meaning by being interpreted through their relations to the rest of experience; through the processes of identification and discrimination. But the sensation is not identified with nor discriminated from another sensation. This would add no whit to its significance, besides being a process psychologically impossible. Previous sensations, as existences, are gone for ever; gone as much as the time in which they occurred. It is true, doubtless, that they have left organic traces of their occurrence in the brain; it may be true that these organic traces may, by indirect stimulation, re-awaken sensations like to the previous ones. But in this process there is, as such, no aid. There is so much sensuous material indirectly stimulated added to the sensuous material directly stimulated, and that is all. If sensations before were multiple, chaotic,

needing interpretation, there has been added more multiple chaotic material, equally in need of interpretation. Multiplication of sensations is not interpretation of sensations previously existent.

The identification is of the meaning of the present sensation with some meaning previously experienced, but which, although previously experienced, still exists because it *is* meaning, and not occurrence. This identification gives the present sensation all the meaning possessed by those experiences with which it is identified. It renders it symbolic of whatever these other experiences signified. If I attribute any meaning to the idea gold, all that meaning is transferred into the present sensation as soon as this sensation is seen to have the same symbolism. And it is seen to have the same symbolism just because the mind brings this meaning to bear upon the given sensation. There is undoubtedly a mechanism, conveniently termed the association of ideas, which insures that the mind brings a certain set, as it were, of its interpreting activities to bear rather than another, but the final result of meaning is wholly dependent upon the group of ideal significances which is brought to bear. The interpreting activity may bring itself to bear in such a way that it shall regard the sensations as iron pyrites or as the talisman of life ; but upon this way depends the meaning of the experience. In short, the sole way of accounting for the fact that we have significant experience, or that sensations, in addition to being psychical occurrences, are also psychical meanings, is that the mind conserves permanently out of every experience the meaning of that experience, and, when it sees fit, reads this conserved meaning into a given sensation, thereby completing the transfer of significance. The experience, as an existence at a given time, has for ever vanished. Its meaning, as an ideal quality, remains as long as the mind does. Indeed, its remaining *is* the remaining of the mind; the conservation of the ideal quality of experience is what makes the mind a permanence.

If it be asked, then, how psychical experience can begin, the answer is, indifferently, either that it does not begin, or that it begins as the beginning of the development—the manifestation—of internal content of intelligence. It does not begin in the sense that meaning arises out of that which has no meaning. It does not begin in the sense that sensations as mere occurrences ever group themselves so that they have in addition meaning. For meaning is mediate, being through relation ; it is ideal, being what is symbolised to intelligence. If intelligence were not present with a

minimum of intelligent or ideal quality to read into sensations, these sensations would never get significance, or presence in conscious experience. The mind must possess at the very outset the idea that there is meaning there. It must project into sensations the conception *that* they are significant, even if it does not develop the measure of this significance. A mind which does not come to sensations with an ineradicable pre-judgment that the sensations are interpretable, that is, possible bearers of an ideal quality, does not have the starting-point for any interpretation, and its sensation could not ever get a beginning on the road of meaning. The sensations might conceivably revive each other and fuse with each other indefinitely, but meaning is absent until they symbolise each other; and they fail to symbolise each other until the *meaning* of one is represented by another. But, after all, the conception of the recalling and fusing of sensations is not one to be allowed, except upon the supposition of the interpreting activity of intelligence. The very fact that sensations are so connected that the peripheral stimulation of one kind will set up the central stimulation of another is due to the unification of meaning which has some time made them fractional members of one whole, so that one cannot recur, even as existence, without the other. Attention has at some time laid its delaying hand upon them and conjoined them; it has selected them for and excluded others from its connecting grasp; and this is to say that they have been given a unity in that which they symbolise. Sensations cannot revive each other except as members of one whole of meaning; and even if they could, we should have no beginning of significant experience. Significance, meaning, must be already there. Intelligence, in short, is the one indispensable condition of intelligent experience.

This seen and stated, it becomes a question of simple fact how far developed in any case the necessary intelligence may be. For our general considerations, it is enough that the minimum requirement of an intelligence which recognises that its sensations have meaning be met; whether any definite meanings, and, if so, what, are projected into sensations, is at present a matter of indifference. We do not care whether they are interpreted as in space and time; as possessing necessarily quantity, quality, relation and modality or not. It is enough to know that they become experience only as interpreting intelligence projects into them something of its own being; they are what they are through this relation to intelligence. There is therefore no beginning of intelligent experience, except such as involves intelligence.

This leads us to recognise that intelligence has a necessary internal permanent content; and that it is only because it has, and because it supplies it to its sense-stimuli, that there ever arises significant experience, and that this occurs just in the degree in which intelligence possesses a synthetic content which it can project into its stimuli. In other words, whether we inquire after the origin or growth of mental experience we find involved a synthetic intelligence, that is to say, an intelligence which possesses a content as opposed to one which is purely formal. Recent Empirical Psychology shows that it has run the circuit and returned to the position of Locke. Locke fitted the mind out with sensations on the one side, and associating comparing activities on the other. These latter were purely formal. They merely operated from without *upon* the material of sense, dividing and combining. Then Psychology attempted to get along with the sensations only. But it was driven to re-introduce the associating activity, and now we see it driven to bring back the comparing relating activity. We have complaints that the Empirical School has neglected the native reading capacity of the mind, and that we must recognise that it is endowed with the ability to identify and discriminate. But this relating capacity is still conceived as formal, although the conception involves a contradiction. The relations are conceived as superinduced, as it were, upon the material of sensation, introducing *ab extra* order into them; instead of as necessary to constitute their entire being as members of conscious experience. When Psychology recognises that the relating activity of mind is one not exercised *upon* sensations, but one which supplies relations and thereby makes meaning (makes experience, as Kant said), Psychology will be in a position to explain, and thus to become Philosophy.

The mention of Kant's name suggests that both his strength and his weakness lie in the line just mentioned. It is his strength that he recognises that an apperceptive unity interpreting sensations through categories which constitute the synthetic content of self-consciousness is indispensable to experience. It is his weakness that he conceives this content as purely logical and hence as formal. Self-consciousness has a material, a psychological content. Kant was never able to bridge the dualism between his *a priori* form and his *a posteriori* content, because he conceived of sensations as furnishing meaning provided only they were unified by the forms of intuition and the categories of understanding. In truth, the sensations supply no meaning.

It is the sensations, however, with the ideal content given them by the self, which are meaning. The self does not work with *a priori* forms upon an *a posteriori* material, but intelligence as ideal (or *a priori*) constitutes experience (or the *a posteriori*) as having meaning.

But I must return from this digression. Experience begins when intelligence projects something of itself into sensations. We have now to recognise that experience grows, or gets more meaning, just in the degree in which intelligence reads more ideal content into it. The adult has more experience than the child—the Englishman than the Bushman—because he has more ideas in his intellect to bring to bear upon his sensations and thus make them significant. Were the theory of our recent writers of the Empirical School correct, the difference must be (1) that the English adult has his formal capacity of relating more sharpened, and (2) that he has a greater number of revived sensations which he combines with his present. But it ought to be evident by this time that (to take the latter point first) the addition of revived sensations would in itself make the experience more confused, make it less significant. It is the addition of sensations selected because they possess the same meaning, it is their unification with the present as same content to intelligence, it is their discrimination as suggesting here and there a new and different shade of meaning,—it is, in short, the supplying of *meaning through sensations*, and not of sensations, that makes the experience more significant. And this is to say that experience grows as intelligence adds out of its own ideal content ideal quality. So we may see (to take up the other point) that any amount of sharpening of the mere power of identification and discrimination, of comparison as a formal power, would add no whit to the experience. The experience as an existence, as a clustering of sensations, is already there. The sole thing is to find out what it means, and this can be done only as there is supplied the mediate relational ideal factor. The growth of the power of comparison implies not a formal growth, but a synthetic internal growth. It implies that when the mind is stimulated to an act of comparison, it has a more varied, complex, better organised system of ideas or meanings to bring to bear upon its sensations, and thus to transfer to these its own content of significance.

This transference evidently incorporates the given experience into the system of meanings or of intelligence, and thereby the better prepares the latter for future apperceptive acts; its incorporation adds to the synthetic content of

intelligence, and thereby to the meaning of possible future experiences. The process of the growth of experience is accordingly a reciprocal one. Any experience has meaning as the self projects this meaning into it from its own ideal store; this projection appropriates the given experience, as to *its* meaning, into the ideal store of the self, thereby farther developing it. Knowledge might be indifferently described, therefore, as a process of idealisation of experience, or of realisation of intelligence. It is each through the other. Ultimately the growth of experience must consist in the development out of itself by intelligence of its own implicit ideal content upon occasion of the solicitation of sensation. But this is again a thought to be elaborated at another time.

We may sum up our results as follows: meaning constitutes the worth of every psychical experience; meaning is not bare existence, but is an inferential mediate factor; it is relation and is ideal; as ideal it is supplied by intelligence out of its own content; this content constitutes, indeed, the reality of intelligence. I think we may have reason now to congratulate ourselves that we did not, at the beginning, make any inquiry into the connexion between this ideal quality or the meaning of experience and objective reality. For, it seems to me, that would have been to begin at the wrong end, and imply that there was somehow, somewhere present to consciousness, a conception of what reality is by which we could measure the significance of our experience. And I have become convinced by the inquiry set forth in the preceding pages that if reality is itself an element in conscious experience, it must as such come under the scope of the significance, the meaning of experience, and hence cannot be used as an external standard to measure this meaning. The reality of experience is, in short, an element of its interpretation, of its ideal quality or relation to intelligence. We do not have externally given to us some fixed conception of reality which we can compare with our ideas, and thereby see how much agreement with reality the latter have. Reality, like everything else that has meaning, is a function of our ideas. To find out what it is we must look within these ideas. It is the great merit of English Psychology that in attempt, at least, it has recognised this. It is its defect that it has tried to find this reality in the ideas, as existences, where naught can be found. We have now to see whether better fortune may meet an attempt to discover the nature of reality, where all is ultimately contained and must be found in the ideas as significances, as meanings. I hope, accordingly, at some future time, to ask after this relation of idea to reality.

IV.—FURTHER PROBLEMS OF HYPNOTISM. (II.)

By EDMUND GURNEY.

IN my last paper (MIND No. 46) I drew attention to the subject of hypnotisation at a distance, as one which certain recent cases had made it as impossible for students of Hypnotism as it must in any case have been for students of Telepathy to overlook. I advanced the view that these telepathic entrancements necessitated no hypothesis of will-power or 'psychic force' capable of producing effects in external matter—viz., the organism of B, the 'subject'—which differed from their cause in A, the hypnotiser; that the phenomenon might be perfectly well regarded as a genuine instance of thought-transference or mental suggestion—certain mental movements of A's, and certain brain-movements correlated therewith, being sympathetically reproduced in the mind and brain of B, who was entranced by the idea of trance in association with the idea of A, just as he might be entranced by those ideas when suggested by A's voice and presence. I further pointed out that it is quite in accordance with what we know of telepathy in other directions that these ideas, when transferred, should take effect in some secondary plane of the 'subject's' mind—a plane segregated off from the conscious self as ordinarily understood.¹ And I must now resume the discussion by recurring for a brief space to the connexion between telepathic hypnotism and other forms of telepathy, which occupy the greater portion of *Phantasms of the Living*. I may begin by showing how, on the view which I have advanced as to the former, a certain difficulty, or rather a certain lacuna, which the latter present, seems to be removed.

To state the position briefly—the principal telepathic phenomena dealt with in that book are (1) experiments in thought-transference, where 'agent' and 'percipient' are near one another, and where some prominent idea in the 'agent's' mind is reproduced in the 'percipient's' mind as an idea simply; and (2) cases of spontaneous occurrence

¹ For further proofs of the reality of mental processes carried on apart from the normal stream of the individual's consciousness, and in that sense without his knowledge, see Mr. Myers's paper on "Automatic Writing," and my own on "Peculiarities of certain Post-hypnotic States," in pt. xi. of the *Proceedings of the Society for Psychical Research*.

(i.e., not, as in experiments, deliberately sought) where the 'agent' and 'percipient' as a rule are far apart, and where an impression representative of the 'agent' is made on one or more of the 'percipient's' senses. These two sorts of occurrence seem, on the face of them, very different; if they are fundamentally akin, they seem to need a connecting link; and we can imagine various intermediate phenomena which would serve the purpose. The link might consist in experiments similar to the ordinary experiments in thought-transference, except in the point that the two persons concerned are *far apart* instead of near together. I have to admit the absence, and also the urgent need, of such experiments. They would, however, be difficult and tedious to carry out; and a long series of results, such as would be required, could hardly be obtained except by the aid of telegraph or telephone.¹ Another sort of link would be if the 'agent's' conscious idea *spontaneously* reproduced itself (without the coincidence being fairly attributable to chance) in the mind of a distant percipient. Now of this *Phantasms of the Living* contains a good many well-attested specimens. It is true that the idea reproduced has not been exactly of the same order as those reproduced in thought-transference experiments; that is, it has not been of anything quite so simple and unemotional as a card, number or diagram; but

¹ An excellent form of experiment for the purpose would be the guessing of numbers, in the way exemplified in *Phantasms of the Living*, vol. ii., pp. 653-4. If the two persons concerned in that series would try a similar series at a distance, the necessary information as to when each guess had been made and a fresh number might be taken being conveyed by telephone, and if successful results were obtained, the fact would be of the very highest interest and importance. "Why then," I may be asked, "do you not get the trial made?" The reason is typical of difficulties which only those actively engaged in 'psychical research' can appreciate. Their material for study consists in human beings with occupations and wills of their own, and as a rule with no independent interest in the subject. Even supposing two quiet rooms connected by the necessary apparatus to be secured at the necessary hours, the plan proposed would demand a considerable amount of trouble, and perhaps in all (counting time for going and coming back) an hour and a half of time, on each of about 15 days. Now to any *bonâ fide* psychical researcher, this expenditure of time and trouble would of course seem the merest trifle. But I would ask each of my readers whether he feels able confidently to make such a demand of any couple, taken at random, among his female acquaintance, in the interest of an inquiry of which they do not understand the bearings, and of which their only idea is that it is bothersome and scientific. At present the persons who would be willing to take the trouble are probably nearly as rare as the persons sufficiently endowed with the necessary faculty to give the experiment a chance; and assistants in whom both conditions are realised are clearly not likely to be found every day, or even every year. But of course the desirability of finding them will be steadily kept in view.

as a rule has represented sights or sounds which have been occupying the 'agent's' senses at some moment of crisis or excitement. This difference, however, can hardly surprise us. For in the first place we should expect some exceptional affection of the 'agent' to be a necessary condition of the spontaneous transference, just as an exceptional and often painful concentration of attention is necessary in the card-and diagram-experiments. And in the second place, spontaneous transfereces of ideas unconnected with any specially-marked moment might occur between the same persons every day, without ever having a chance of exciting attention or being recorded. In the mind of a 'percipient' who was not (as in the experiments) deliberately putting himself into a passive and receptive attitude, a transferred idea would probably at most reach the bare threshold of consciousness, where it would meet and jostle with a hundred others, while bearing in itself no sign of its origin: what, then, is the likelihood that the 'percipient' would pick it out, note it, and ask all his absent acquaintance whether their minds were fixed on a similar one at that particular time? And even if some sporadic correspondences of the sort were noted, they could scarcely be presented as 'ostensive instances' of telepathy, considering the immense range for accidental coincidence that the world of ideas common to all of us contains. I think therefore that the ostensive instances which I have mentioned present in their content as much affinity to the experimental transference as could reasonably be expected.

But yet a third link of connexion between the experimental and the spontaneous cases would be of this sort—if an impression representative of the 'agent' were made on the 'percipient's' mind, without any affection of his senses. Such a case would resemble the majority of the spontaneous transfereces in the nature of the idea transferred, and the majority of the experimental transfereces in the absence of sensory affection on the 'percipient's' side; and the type would indirectly afford a strong indication that the sensory affections—phantasms of forms and voices—which characterise so many of the impressions that have coincided with the death or danger of friends at a distance, are really mental creations of the 'percipient's' own (or, as I have never hesitated to call them, *hallucinations*), in which he invests the idea of the 'agent' that has telepathically reached him. Now the cases of distant hypnotisation, explained as I have here endeavoured to explain them, supply exactly this transitional type. They are truly experimental, inas-

much as the attempt to exercise the distant influence is deliberately and consciously made by the 'agent'; and the idea of him which reaches the 'subject's' mind, sometimes above and sometimes below the threshold of consciousness as we understand it, does not in either case emerge into sensory form. I may add that cases are on record where yet further links or gradations appear; for instance, a person noted for his mesmeric powers succeeded in producing a strong impression of his presence, which nevertheless contained no sensory element, to two friends at a distance, who were not in any degree hypnotised by the impression.¹

One further point remains, in which a comparison of the phenomena of hypnotisation at a distance with those of non-hypnotic telepathy seems to throw light on both. In *Phantasms of the Living* I have drawn attention to the *impulsive* quality which seems often to characterise a telepathic impression; and which seems to be shown equally in the forms of experiment where a motor-impulse is produced, as, *e.g.*, in the palmary instance of Mr. and Mrs. Newnham referred to in my last paper; in one or two spontaneous cases where the impulse similarly was to write, and the transferred idea appeared in the writing; and in other spontaneous cases where a definite and peculiar impulse to movement or action was conveyed; but also more generally, I venture to think, in that very fact of the frequent externalisation of the impression as a sensory percept, which has been mentioned in the preceding paragraph.² Ordinarily, of course, our ideas of our friends, when they occur to us, do not project themselves outwards as hallucinations representing the friend's forms or voices; how is it that telepathic ideas so constantly do so? The fact cannot, I think, be disputed by anyone who accepts the telepathic evidence, unless on the hypothesis—not likely to be entertained by readers of MIND—that what is perceived is a material body, capable of emitting or reflecting light and of setting sound-waves in motion. I at any rate see no escape from the alternative that it affects the percipient's senses either by

¹ *Phantasms of the Living*, i. 99. It should be noted that it is by no means invariable, in the spontaneous cases, for the idea of the 'agent' to be externalised in the senses. Sometimes the simple idea of his death is conveyed (*e.g.*, in the cases numbered 45, 87, 401); but inasmuch as that idea may reasonably be supposed to have been present in his mind during the approach of death, such cases may as fitly be referred to the class where the 'agent's' idea is literally reproduced as to the class where the *idea of him*, rather than *his idea*, is the subject of transfer.

² See *Phantasms of the Living*, i. 537-8.

stimulation from without or by projection from within. Now if we accept this forceful quality, this tendency to push on into an extreme form, in one class of telepathic effects, we shall naturally look out for it in another class; and the recognition of it as a tolerably general characteristic is perhaps the only sort of explanation that it at present admits of. What sign then do we find of it in the hypnotic cases? No conclusive sign, at first sight, it must be admitted. For the mere idea, the mental suggestion, of the trance-condition, in association with that of the hypnotiser's personality, has been already represented as an adequate ground for the supervention of the trance, alike whether the idea be suggested by the hypnotiser's words and presence or by telepathic transference—the exceptional effect being accounted for by the exceptional sensitiveness of the previously-hypnotised 'subject,' who is in a state, so to speak, of highly unstable equilibrium. It would clearly then be illegitimate to supplement this view by attributing an exceptional impulsive quality, or vigour of impact, to the telepathically-transferred idea, *unless* we were able to suppose some similar condition in the cases where the hypnotiser's words and presence are ostensibly the only cause that works on the 'subject'. Well, the point is now reached at which this very supposition can not only be intelligibly made, but shown to be in some instances at any rate indispensable.

It will be remembered that in speaking of verbal or physical suggestion of the idea of trance, I pointed out that this alone was not enough to induce the state even in a sensitised 'subject,' who might meet with the idea in a book without undergoing any effect whatever; and that the idea of the original hypnotiser's personality was at any rate an indispensable element. But it may be urged with equal reason that something more still is needed; for this other idea might also be met with in a book—*e.g.*, the 'subject' might read a printed account of his previous entrancements by his special hypnotiser without a fresh entrancement ensuing. What, then, makes the difference? Is it the sense of the operator's authority, which the 'subject' is made to feel either by his tone and manner or by a general belief in his power? Very often, probably, this is enough; but the French cases epitomised in my former paper clearly show that it is not always enough, and no single point in them is more instructive than this. Prof. Pierre Janet, Dr. Héricourt, and Dr. Dusart all observed that the 'subject's' *belief* that the entrancement was being then and there attempted and willed by the special hypnotiser was ineffective, if the hyp-

notiser was not really concentrating his mind in the manner supposed. This fact seems explicable only on the hypothesis that, when the effect is produced, some cause is at work beyond the ostensible cause of verbal and physical suggestion; and the cause which, on the grounds of analogy and of parsimony of assumptions, at once presents itself is surely no other than *mental suggestion*—telepathic, even though the two persons are in the same room, as being transferred otherwise than through the recognised channels of sense, and carrying with it the impulsive quality, which now involves the further development into trance, as in other cases it involves the further development into hallucination. In this way that inscrutable something which has been described as specific 'mesmeric' power would reduce itself (for the cases in question) to identity with the more comprehensible and general sort of telepathic 'agency'; and its peculiar effect on the 'subject' is simply a pushing on into an extreme form in the direction of *least resistance*, which is here determined as that of hypnotic trance by the pre-established sensitiveness to this particular idea. Such an agency is no longer specific in the sense of being an occult mode of influence which a few specially endowed persons have always at command, and can bring to bear at a moment's notice on any favourable 'subject'; it receives its specialisation at the *receiving* not at the *transmitting* terminus.

"But," the 'mesmerists' might object, "does not this view of the hypnotic cases ignore the palpable fact of the *rapport*? Is it not mere juggling with words to deny any specific quality to 'mesmeric' agency, if the *rapport* which puts the 'agent' in connexion with the 'subject,' and which has been mesmerically established, remains specific? And how can that description be denied to it if, as usually happens, each of the two persons concerned is indispensable to the other—if A can at that particular time be entranced by the suggestion of no one in the world except B, and B's suggestion can at that particular time entrance no one in the world except A?"

Now, in the first place, a certain ambiguity lies in the word *rapport*. When A's thought or sensation has been transferred to B, we may say, if we like, that A and B were in *rapport*; but this is merely to coin a useless definition, and to throw away a useful word, unless we mean by *rapport* something which is *different* from the transference, and which has *conditioned* the transference. Taking this latter sense, I have no doubt that such a thing as hypnotic *rapport* exists, and I have no objection to the word *specific*

as applied to it; but I believe the true application to be quite remote from any theory of occult or 'mesmeric' influence. For why need we assume the parties to be connected by any more mysterious bond than the one before defined (MIND No. 46, p. 228) in connexion with hypnotisation at a distance—the permanent impression of their past relations to one another? On the view of psychological transference (as opposed to physical effluence) which I have founded on the distant cases, it is hard to see that any further condition is either possible or required. That this permanent impression in the hypnotic cases is peculiar, I should fully admit; but only, I conceive, in so far as the *relations themselves* are peculiar. Now, their peculiarity is sufficiently patent: the 'subject's' mental abandonment to the idea of his hypnotiser, with all the oddities of conduct to which this one-sided engrossment leads, are phenomena quite special to the hypnotic state.¹ And inasmuch as rare

¹ This engrossment is implied, of course, in that abnormal responsiveness to the hypnotiser's suggestions which I regard as the most distinctive mark of the hypnotic state. But it is shown also in other ways. The 'subject' will often seem blind and deaf to the presence and voice of everyone else, and can only be made to see and hear some other person by the hypnotiser's pointedly bringing such person to his notice, so that the two become associated in his mind. A sensitive 'subject' will frequently follow the hypnotiser about the room or the house, will show uneasiness when he disappears, and will even feel a strong impulse to rejoin him after an interval of a day or of several days. The same peculiarity seems to be shown in a fact which has not, I think, been enough noticed, but as to the reality of which I would appeal with confidence to anyone who has assisted at hypnotic experiments conducted by a good many different operators at a good many different places. I mean the readiness with which what may be called *hypnotic fashions* are established. A group of 'subjects' in one place, who have been a good deal under the influence of the same operator, will develop a quite different set of habits from another group in another place. A rough instance of this is where one group prove more or less unamenable to methods of entrancement or of awakening which are specially successful with the other; as, *e.g.*, I have found the 'subjects' of one operator wake with certainty at a smart blow or sudden command, while those of another seemed recalcitrant to everything except the flicks of a towel or large handkerchief to which they were accustomed. But their behaviour during the trance often shows a far more subtle conformity to what the operator expects; so that there come to be veritable *schools* of hypnotism—the phenomena taking the course marked out for them by the operator's general view of the 'subject'—a view which may really have originated to a considerable extent in accidental peculiarities of individual subjects. I should be inclined, for example, to account in this way for much of the difference between the observations of Nancy and of the Salpêtrière, and, in consequence, for much of the difference in the theories associated respectively with the two localities. But I cannot pursue this subject in a footnote. What I wish to point out is simply that these facts seem to imply a far more continuous and minute attention, on

causes may naturally have rare consequences, there is no difficulty in supposing that a consequence of this special relation is a special subsequent penetrability (so to speak) of one mind by the other—a partial weakening, in a single direction, of the barrier which normally isolates individuals, and confines the experience of each to sensations received through the recognised channels or ideas originated by his own activities. Not, of course, that we should have had any right to *predict* such a consequence: telepathy could never be deduced *a priori* from anything else. But when, as a matter of fact, we find psychical transferences taking place between certain persons after, and not before, their minds have been in a certain peculiar relation to one another, it is impossible not to suspect that this relation is a vital condition of the transference; and if this relation has ceased to show itself in any recognisable form at the time when the transferences are observed, we can but seek the immediate condition in the permanent impression which it has left. This permanent impression, then, and nothing else is the *rapport*; and it will be seen how everything exceptional and mysterious has now disappeared out of it. In the line of conditions the only exceptional part was found to lie elsewhere—in the well-recognised psychological peculiarities of the hypnotic state; and the *rapport* itself, as the abiding latent sense of past relations, proves to be fundamentally the same in kind as that which has pre-existed in a large majority of the spontaneous telepathic cases—where the ‘agent’ and ‘percipient’ have been connected by ties of affection or acquaintance, which we may equally call specific, in the sense of being personal to each pair, but not with any more occult reference.

And if *rapport*, as a hypnogenetic condition, is not exceptional in *kind*, neither does it seem necessary to suppose it exceptional in *strength*—to suppose, that is, that it facilitates the telepathic transference in a higher degree than is possible or common in cases unconnected with hypnotism. For we must distinguish the transference as such from its further

the part of the ‘subjects,’ to the substance and tone of remarks made by the operator in their presence, and a far stronger impulse to satisfy him, than would be exhibited by persons of the same degree of intelligence and education in ordinary life, or than would be guessed from the appearance of dulness and apathy which is usual to a hypnotised person when no direct appeal is made to him from outside. I am glad of this opportunity of modifying some expressions in a former paper (*MIND* ix. pp. 489-90) where a too large concession was made to the idea that psychical functions are abolished, or nearly abolished, in the lethargic stage of hypnotism.

effect on the 'subject'. It may very likely be the case that the hypnotisers and 'subjects' who, if the necessary trial were made, would yield us examples of telepathic hypnotisation, are more numerous in proportion to the total number of hypnotisers and 'subjects,' than are the persons who at death produce a marked telepathic impression on some friend or relative, in proportion to the total number of persons possessing friends and relatives. But this seems quite sufficiently accounted for by the fact, already noticed, that the hypnotic 'subjects' are hit (so to speak) at a specially explosive spot. The idea that reaches them has been associated on former occasions with precisely the marked consequence that now again ensues; whereas the idea of a friend, or even of a friend's death, has not on former occasions been associated with any marked consequence, such as a hallucination suggestive of his presence. The hypnotic 'subjects,' in short, have been adapted by artificial means to respond strongly to the telepathic stimulus; while of people at large it is only a small minority in whom the natural condition for such strong response exists. And here let it be specially observed that it is by absence of *response*, not absence of *stimulus*, that we shall most readily and reasonably account for the rarity, in comparison with the numbers who die, of telepathic affections of the friends and relatives of dying persons. That rarity has been felt as an initial obstacle to the whole telepathic theory; and there is no doubt that telepathic action becomes more comprehensible the more universal we can consider it. Now if, as analogy would indicate, the marked cases of telepathic phantasms are only the 'ostensive instances' of a class of events which may occur with all degrees of diminishing intensity, we may fairly suppose some of the degrees to be *sub-liminal*; and if so, numbers of spontaneous transferences might naturally take place, conditioned by the normal bonds of affection or acquaintance, which fail to produce any recognisable effect—fail, that is, to make their way into normal consciousness as clear ideas or sensory hallucinations—through a lack of some necessary condition in the recipient mind.¹

This may, perhaps, be made clearer by an illustration drawn from certain further facts of hypnotism, which are

¹ On this view, it will be seen, telepathic phantasms (and possibly telepathic affections of every sort) can be represented—no less than the special classes above-mentioned—as emergences or developments of ideas which have in the first instance affected an unconscious part of the percipient's mind.

also worth noting on their own account in connexion with the subject of 'rapport'. A hypnotised person will sometimes be able to detect the faint whisper of his hypnotiser, amid a babel of sound which makes it absolutely indistinguishable to anyone else.¹ How is this fact to be accounted for? Certainly not by hyperæsthesia of the sense of hearing; for no such condition is observed in relation to any other sound. We must again fall back on *rapport*—but again on *rapport* of a quite comprehensible kind. It will consist, not now (as in the cases of hypnotisation by suggestion) of the 'subject's' memory of his *past* relations to his hypnotiser, but in his sense of the *present* relation—the pervading dominance of the idea of that one particular person in a mind whose reflective and discursive powers are in abeyance, and whose passive absorption is undisturbed by competing images. This dominant idea is now the vulnerable spot; and consequently a stimulus which strikes that spot—in other words which impresses the sensorium in a manner previously associated with impressions of the hypnotiser—wakes a reverberation which detaches itself in consciousness. But for the purpose of my illustration the point to observe is that the *stimulus* acts equally on the other persons present; for in the midst of perfect stillness they would hear the whisper, and, as an element in the total of sound that is being produced around them, it must undoubtedly affect their sensorium; only, not falling on any vulnerable spot, it is totally unobserved. Just so, I conceive, the psychical stimulus in the cases of telepathic transference: the transference may take place, and produce a certain psychical result; but, without the appropriate condition, that result will not reach any appreciable strength. The condition of response might be compared to a sounding-board: a number of strings may be faintly stirred by the telepathic wave; but only those which are backed by a sounding-board will reverberate audibly. That only a small minority of minds should naturally present this condition is not a point of any difficulty—or at any rate is one admitting of just as much and just as little explanation as that a small minority of persons should be hyper-sensitive in any other direction. But where the condition exists, the *rapprochement* of the rare natural hyper-sensitiveness of the ordinary telepathic percipient to the rare artificial hyper-sensitiveness of the hypnotic 'subject' appears to me to be both legitimate and instructive; while the rejection which it involves of the idea of 'mesmeric' *rapport*, as anything

¹ *Proceedings of the Society for Psychical Research*, vol. i. 255-6.

per se and exceptional, tends still further to the simplification of the telepathic theory.

Before leaving the subject of hypnotic *rapport* and its effect on the telepathic transference of ideas, I must point out that I have been speaking exclusively of *hypnogenetic* ideas. In respect of other phenomena of thought-transference, exhibited during the actual duration of the trance, it would be rash, I think, to assert that the *rapport* with the operator is not a condition of transference more favourable than any that spontaneously presents itself. I at any rate do not know of any results of experiments conducted with persons in a normal state which can be compared, for scope and complexity, with some of the hypnotic cases—*e.g.*, with the important set of observations recorded in *Phantasms of the Living*, ii. 336-43; where an exceptional facility of communication seems to be shown in two ways,—(1) by the great frequency and certainty of the effects; and (2) by the idea communicated being often one which passed through the hypnotiser's head when she was not in the least thinking of her patient or of attempting a transference, and upon which therefore she was not concentrating any special energy of attention. The very fact, moreover, that the phenomena of 'community of sensation' were observed with hypnotised persons many years before they were obtained with others may seem to point in the same direction; and in most of these cases it looks as if the results were directly dependent on the establishment of the hypnotic relation. At the same time it must be remembered that 'community of sensation' is a very rare phenomenon even with hypnotised 'subjects'; while, on the other hand, we are not yet at all in a position to decide what proportion of un hypnotised persons might show high susceptibility to this and other forms of thought-transference, if only the necessary experiments were widely made. It should be noted, moreover, that quite as striking results have been obtained in the particular line of 'community of sensation' with non-hypnotised as with hypnotised 'subjects' (*Phantasms*, i. 52-8); and that several forms of transference have been obtained exclusively with persons in a normal state. On the whole, the conclusion seems to be that the effect of the hypnotic state in facilitating and strengthening telepathic impulses, though occasionally very decisive, is very far from constant. We should probably gain a clearer view on the subject if persons who have shown themselves to be susceptible when in one state were subjected to experiments when in the other; and if hypnotisers who have obtained community of sensation with their 'sub-

jects' would experiment with other persons who have proved to be sensitive 'percipients'. But such suggestions would be totally unpractical unless we might hope that as psychical research gradually becomes legitimised, the human material available for study will become less rare.

To return now to the special hypnogenetic problems: I have shown grounds for believing that in some cases of hypnogenetic suggestion—where the parties are together and the suggestion is conveyed by physical means, no less than where they are separated and the suggestion is psychical, a true psychical or telepathic agency is exercised, of a sort foreign indeed to the hitherto-accepted theories of hypnotism, but equally remote from 'odic' or 'mesmeric' effluences. But if in these cases the first indispensable conditions of the effect present themselves as *mental* phenomena, the question naturally arises what relation, if any, do mental phenomena hold to the other hypnogenetic methods, where the entrancement takes place (as with fresh 'subjects' it almost always does take place) after the application of distinct physical processes? I have purposely deferred these cases of primary hypnotisation till those of the secondary (or suggestional) class had been discussed, as being at the very outset harder to discriminate—for this obvious reason: that while we can be sure that there is no effective exercise of *bodily* energy, when the 'subject' is sitting apart or alone and the mode of influence is ostensibly mental, we cannot similarly be sure that there is no effective exercise of *mental* energy, when the operator takes him in hand and the mode of influence is ostensibly bodily. In the latter case, therefore, the actual or possible complication of causes makes analysis very difficult. The question is really a triple one; for we may ask (1) whether the hypnotiser's mind has some direct share in the effect, originating a psychical transference in the sense of 'psychical' before explained (MIND No. 46, pp. 222-3); or, supposing his body alone to act directly, by touch, passes, &c., whether (2) the effect is purely mechanical and due simply to the pressure or the gentle stimulation which his muscles bring to bear, or (3) is of a more inscrutable and nervous sort; in which last case, we must observe, his mind may condition it, as in the first case, though less directly—since from whatever part of the body the nerve-force be supposed to act, the total of energy evolved may include certain cerebral changes of which certain mental facts, such as concentration, may be the necessary correlates. The *second* of these hypotheses is, of course, the one in favour of which physiologists

have unhesitatingly pronounced. This has been almost inevitable; for the first of the three was not likely to occur to them, until the reality of 'psychical' or telepathic transferences was proved irrespectively of hypnotism, and by examples where the possibility of bodily influence was excluded, either by the form of the experiment, or by distance; while the last of the three, though not equally outside the range of physiological conceptions, and though nowhere so strongly suggested as in the immediate facts of hypnotism, is so indefinite as to seem more like a phrase than an explanation;—what can science have to say about inscrutable nervous influences? The second hypothesis, moreover, undoubtedly offers a satisfactory account of many of the ordinary cases; while its adequacy has seemed almost guaranteed by the fact that not infrequently a person has succeeded in hypnotising *himself* by the purely mechanical process of fixing his eyes immovably on some near object.

As to the first hypothesis—that of direct 'psychical' agency—there is not much to detain us; simply because where physical processes are simultaneously brought to bear, psychical agency could never be *proved* to be the really effective element; while the fact that only one case¹ is on record of silent concentration, unaccompanied by any physical processes, producing hypnotisation in a person never previously entranced, leads us to suspect that its influence would at most be supplementary to that of the other means adopted. That it sometimes has an influence of this supplementary sort seems likely enough; for though with a fresh 'subject' there is no specially 'explosive spot'—the result of previous hypnotisation—to be affected, yet, if the working of the transferred idea be of the sort above suggested, we can readily conceive that a soporific impulse, strong enough at any rate to facilitate the passage into trance, might be 'psychically' conveyed to a sensitive recipient. It must be remembered that in discussions of that part of the hypnotic process which is peculiar to the 'subject' it has been the almost invariable rule to attach some distinct importance to mental elements—to eke out the supposed influence of physical immobility, or of an inward and upward squint, by that of attention or willingness to yield to the novel impulse; and for a believer in telepathy it is impossible to assume such mental elements as these without admitting the possibility at least that they may be reinforced,

¹ See MIND No. 46, p. 214, note.

if not actually initiated, by a psychical transference. And that is all, I think, that can at present be said.

But as regards the second and the third hypothesis, the issue can be made more definite; and it is really possible, I think, to fight it out to a conclusion. In any particular case, there either *is* or *is not* some specific physical influence at work, beyond the merely mechanical effect of the muscular processes involved. Now, obviously the question of the possibility of a specific physical influence of one organism on another is not necessarily confined to cases of hypnotism; but if in any shape whatever the reality of such an influence were made apparent, the difficulty of supposing it to be operative in hypnotism would practically vanish—just as the difficulty of conceiving hypnotisation at a distance vanishes when the reality of telepathy is recognised in other ranges of phenomena. I have a purpose in this remark; for, as it happens, some of the cases which to my mind have seemed the most suggestive of a specific physical influence of one human organism on another have not been connected with attempts to hypnotise, though the results have to a certain extent resembled those of hypnotism; and I am glad to have an opportunity of directing attention to these facts. They have all occurred in the course of what is known as the ‘willing-game’—*i.e.*, under conditions which involved not only contact but concentrated desire on the ‘willer’s’ part. The following are specimens of what the accounts that have reached me lead me to conclude has happened, in a more or less marked form, on many occasions when this game has been played. The *Lancet* for Oct. 11, 1884, thus reports a case related by Mr. Wherry, F.R.C.S., to the Cambridge Medical Society:—

“Mr. Wherry was sent for one evening to see an undergraduate who had become suddenly ill during the willing-game. It appeared that his friends had blindfolded him in the usual manner and were willing him to do some simple action, when suddenly he became weak in the knees and had to be helped to a seat. The handkerchief was removed at once, but the patient did not seem at all himself. He found him leaning against the mantelshelf, looking fixedly downwards in a dogged and morose attitude; he answered questions in monosyllables in a hesitating way, not stammering, but with a jerk and without expression. Usually, his friends said, his manners were natural and polite. The pupils were dilated, with no action to light, and his memory was a blank as to the details of the game. He was sent to bed, and when seen the next morning he was better; his pupils were normal and active to light, but his manner was still odd and his speech remarkable. When advised to leave Cambridge for a few days’ change, he refused rudely, but was afterwards persuaded by his friends, and returned quite well.”

On the same evening another medical witness, Mr. Deighton, reported that “in November, 1883, he was summoned in urgent haste to see an under-

graduate. He found him surrounded by his friends, who said they had been playing the willing-game, and that he had been blindfolded and willed; soon afterwards he became tottering on his legs and went into a state of convulsions. When seen he was tossing about on a sofa, with face slightly flushed, the movements of the arms and legs being most irregular, almost equally exaggerated on both sides. The muscles of the face and neck were least affected, but he spoke in a jerky way, and on putting out his tongue it was protruded and withdrawn suddenly. He was quite conscious, clear and collected, and said that he tried to prevent himself tossing about, but could not help it. The pupils acted to light and were natural in size. He was ordered a bromide draught and told to go to bed. The next morning he was quite well. He said he had spent a bad night, tossing about until 5 A.M. before he went to sleep, but there was now only an occasional twitching in the legs. He was of a nervous and excitable disposition, but never had fits, rheumatism, or chorea."

About the same time the Master of Selwyn College told me of a very similar incident which had happened among his own undergraduates. I will add one more case which I owe to Mr. F. H. Matthews, of Ivy Villa, Beulah Hill, Upper Norwood. The narrator is his sister, and the narrative has been fully confirmed by the lady in whose house the incident occurred, and also by Mr. Matthews's independent recollections of what his sister had told him.

"February 14, 1886.

"On the evening of Tuesday, December 8, 1885, we were playing the willing-game, and upon being asked to try, I left the room, whilst something was thought of. When I returned I was blindfolded, gave my right hand to Miss S., who was to lead me. Almost immediately I started forward, and went straight towards a young lady, and fell on my knees before her. Then, unfortunately, my thoughts returned to me, and I was conscious that I should kiss her. The knowledge, it seems, prevented my performing the action, and the next moment I fell on the floor with the full consciousness of what had happened to me." She lay for some minutes, unable to speak or move, and breathing with great difficulty. "When my dress was unfastened, the relief was so great that I broke into crying, and I could hear myself how loudly I sobbed, feeling even ashamed, yet not able to check myself." Revived with brandy, &c., she had a violent fit of trembling, which left her with an inclination to sleep. This, however, was resisted; and after forcing herself to walk upstairs, which she did with assistance, she returned to a normal state.

While this paper is passing through the press, a friend tells me that on the only occasion when she was ever "willed" in this way, she fainted and fell almost immediately on being touched.

Such results as these seem at any rate to deserve attention. Nothing like them has ever occurred in experiments in thought-transference proper, without contact; and it is very difficult to believe that what was regarded as a mere pastime should have produced a psychical state of tension and emotion sufficiently *sui generis* to account for the occur-

rence of such unique effects in healthy persons. May not something be said for seeking the cause of the unusual effect, or some part of it, in that part of the prior conditions which was itself unusual—that is to say, the continued physical contact of the 'subject' with a person who was in a state of concentrated expectancy? The cases are in one way more suggestive of specific influence than some of those of hypnogeny proper, just because the character of the *attouchements* in their mechanical aspect was so entirely simple and *unspecial*. When a person is seen pressing his 'subject's' head or body at carefully-defined spots,¹ or making passes over him in a methodical or elaborate fashion which professors of the art get money for teaching to others, one naturally concludes, if remarkable results follow, that the special place or mode of the manipulation has something to do with it; but the casual mode and variable place of the touch in these amateur diversions would lead us to suppose that the contact, if specialised at all, is specialised by the will-force which accompanies it, and in something other than its mechanical aspect.

But it is naturally in connexion with professedly hypnotic cases that the more conclusive proof of the inadequacy of the mechanical explanation must be sought—and may, I believe, be found, though to find it may require a somewhat wider outlook over the hypnotic field than has been always easy or possible for persons who have been chiefly occupied with their own experiments. This at any rate applies to a general argument which I have used before (MIND ix. 505-6), but which is worth repeating, if only that it may, if possible, be refuted. There clearly could not be a better *a fortiori* proof of a specific influence pertaining to the human organism than if it were shown to be specific in the further sense of pertaining to some organisms and not others. Now the mechanical hypnotic processes, by which it is customary to supplement the effect of immobility and a fixed gaze, should apparently be equally effective *whoever applies them*; whereas, as a matter of fact, different persons exhibit in this

¹ There are, however, professedly hypnotic cases which may very likely be entirely parallel in character to those just cited. Such a case was supplied to me by Mr. James Gudgeon, of Stowmarket, and completely confirmed in writing by two gentlemen who witnessed it. Mr. M., a tall and robust man, who had been ridiculing mesmerism and had defied Mr. Gudgeon to mesmerise him, in less than ten seconds after Mr. Gudgeon placed his hands on his head, "fell on the floor in a state of perfect and complete coma". This was followed by an attack of violent convulsions when water was thrown over him, and medical aid had to be sought.

matter very different degrees of efficiency. The processes themselves, however, need to be carefully distinguished. They consist for the most part of passes over the upper part of the person, and of pressure on the globe of the eye, or between the eyes, or on the vertex. It is common for the hypnotiser to combine the *passes* and the *pressures*; but the grounds of their efficacy are very different. The *pressures* seem undoubtedly to be mechanical in their action: they are applied to certain particular spots, and stimulate certain particular nervous *foci*, which presumably are intimately connected with the effect, and which physiologists therefore can label as 'hypnogenetic,' and then leave; for physiology does not profess to do more than assign to special localities and special tissues their proper functions. But the virtue of *passes* cannot be accounted for in any such fashion; for they touch no specialised springs in the organism. Yet passes were a mode of operation which physiologists found in possession of the field, identified, for many years before they took up the subject, with 'mesmerism' and theories of occult influence; and which therefore they could not avoid recognising and attempting to explain in some other way. The attempt has not been fortunate. It has consisted simply in treating passes as one of the forms of 'monotonous stimulation,' and in assuming the power of monotonous stimulation to produce hypnotic trance as an ultimate fact. I am inclined to question both the ultimate fact¹ and its application. Out of many possible forms of monotonous stimulation, only two, seemingly quite arbitrarily selected, have ever seemed to have any hypnogenetic efficacy—namely passes, a form which has very frequently been employed, and the ticking of a watch, a form which has comparatively rarely been employed. So far, then, from passes being explained by being called a form of monotonous stimulation, the burden of supporting the credit of monotonous stimulation, as a hypnogenetic agency, seems to fall almost entirely upon them. Yet an unprejudiced inspection of the ordinary procedure of passes will really make it seem absurd to find the peculiarity of their influence in the cause assigned—for the simple reason that there is often next to no monotony, and next to no stimulation, about them.

There seems in this matter to have been a confusion of things which are only superficially alike. Where *contact* is employed, as in gentle strokings and rubbings, the unaccus-

¹ On this question see the remarks of Mr. Myers, *Proceedings of the Society for Psychical Research*, pt. x. 145-8, with which I heartily concur.

tomed peripheral stimulation, produced by purely mechanical means, has at any rate a first claim to be considered the sufficient cause of the result that follows, whether that result be hypnotic trance or local anæsthesia or rigidity. Here, then (as in cases where actual pressure is applied to the supposed hypnogenetic spots), the rival or supplementary hypothesis of a more specific influence must depend mainly on the difference (above referred to) between the capacities of different manipulators, or of the same operator when working with concentration and attention and when working indifferently and mechanically.¹ But passes are very frequently made without any contact at all, or with very slight and irregular contact; so that the 'subject,' if he shut his eyes, might be unconscious that they were going on or that they were going on with any regularity. The stimulation, therefore, if anything, must be optical. But as the 'subject's' eyes are frequently fixed on something else,² and not on the operator, the fact that the arms of the latter are moving more or less rhythmically within his field of vision could hardly overpower his organs in any specific manner, even if the movement were uninterrupted and long continued. This, however, is rarely the case: as a rule the procedure conforms rather to the practice of Dr. Liébeault, who has probably hypnotised more persons in the course of his life than any other operator, and with whom (as Mr. Myers has justly observed) "the passes and touches made are brief and variable". On the whole, then, so far as mere passes without contact can be held to be effective, the fact is a positive and direct argument in favour of a specific physical influence.

So far, however, we have not got beyond cases where the 'subject's' own mental state is, or may be, one of the conditions involved. We may suspect that the importance of this condition has been sometimes exaggerated. It is very difficult, for instance, sweepingly to attribute the different

¹ See *Phantasms of the Living*, i. 88; and the experience of the French hypnotists whose accounts were epitomised in my last paper (MIND No. 46, pp. 218-19).

² This fixation of the eyes cannot itself be classed as one of the efficacious modes of monotonous stimulation, since the speciality of it, as Braid observed and taught, is the strain caused by the particular position of the eyeballs; and the concurrent stimulation of the retina by light is, for hypnogenetic purposes, a mere accident. It is worth noting that, as regards actual entrancement, the fact that the 'subject,' by his fixation of his eyes, may be distinctly contributing to his own hypnotisation, tends to mask the difference in the capacities of different operators, which (as we shall see a little later) is better displayed in local and therapeutical effects.

degrees of success or unsuccess of different operators in entrancing, stiffening, anæsthetising, &c., to the 'subject's' varying moods of belief or distrust; for it is not a monopoly of those who succeed as hypnotists to inspire the emotions of faith and expectation, which, before their success, they themselves are often far from feeling; while those very emotions have often been brought to bear on other operators, or other proposed means of alleviation, without having any result. Still, complete exclusion of the subjective factor will no doubt add indefinitely to the force of the evidence. The exclusion will tie us down to experiments of very special types. As a rule, of course, contact must be wholly avoided; for it could hardly fail to reveal to the 'subject' what is being attempted. There is, however, one class of persons with whom this objection does not apply—namely, very young children; and I will begin with evidence drawn from that class.

As usual, one has to deplore the lack of exhaustive experiments. The very last quality that competent persons can be expected to bring to bear on any hypothesis connected in their eyes with the mesmeric heresy, is patience; and patience is undoubtedly required to devote ten minutes of laying-on of hands to each of a long series of suffering infants. As far as I know, Dr. Liébeault, of Nancy, is the only well-known practitioner who has taken this amount of pains;¹ and his conclusions are the more valuable in that they are opposed to the view maintained by him previously for many years—that the therapeutical influence of hypnotism is always and wholly a matter of suggestion and imagination. In his *Étude sur le Zoomagnétisme* (Paris, Masson, 1883), he describes experiments with 46 sick children of 4 years old and under (the large majority being under 3), in all of which some amelioration, and in most very distinct amelioration, followed his manipulation. The cases are not all of a crucial kind, the ailment having simply been diarrhoea or failure of appetite, which might have been about to mend in any case. But the cumulative force of the record cannot be denied; and some of the individual cases are striking enough. One interesting feature was the frequent production of sleep, either during the contact or after it

¹ Dr. Liébeault attributes the idea of his own experiments to information of similar successes which he received from a M. Longpretz of Liège; and in part also to the account given long ago by Dupotet (without sufficient detail for scientific purposes) of movements and contractions which he induced in sleeping children by movements of his own hand in proximity to their bodies, in spite often of the intervention of the bed-clothes.

at unusual times, or for an unusual length of time. Thus, one child, aged 3½, on returning home, slept for 17 hours consecutively, and even then did not wake spontaneously. Another, aged 1 year, had been crying day and night for 4 weeks, with snatches of sleep of only 5 or 6 minutes, owing to obstinate colic and constipation. "During one of her short sleeps, and consequently without her consciousness, I prolonged this condition, keeping my hands on her for 20 minutes, till she showed signs of waking. From that moment the crying stopped, as if by magic; she slept during a great part of the night, and when she was brought next day, she was quiet, and the constipation had been relieved." I have not space for further citations; but, as to the results, it will be noted that it at least sufficed to bring a man whom none that know him will accuse of pretension or exaggeration, and who had long pursued the path of orthodoxy, to a candid confession of the belief that "the organic changes produced must have been due to a transmitted nervous influence". He considers the alternative hypothesis, that the effects were due to the heat of his hands; but not only had the children been kept warm—and were probably as warm as his hands when he touched them—but, as he remarks, they "had often remained for long hours in their mothers' hands, without any amelioration". Thus the results, if they prove specific influence at all, would go to prove an influence which is specific not only in the sense of being peculiar to living organisms, but in the further sense of appertaining to particular individuals.

To pass now to experiments with older persons, where contact must be avoided. These could hardly ever take the ordinary form of entrancement; for it would be difficult so to arrange conditions that passes should be continuously made near a person's face without his knowledge and consent. The *waking* from trance can, no doubt, be carried out in this manner; and I have myself on a good many occasions seen a 'subject' awakened by gentle upward passes, not near enough to his face or head, one would have thought, to produce any sensible current of air.¹ But by far the most

¹ Berger and Gscheidlen have described the transformation of natural into hypnotic sleep by the holding the hand near the sleeper's head. Gscheidlen professes to have succeeded in 8 cases out of 15—the test of the change of state being that the sleeper no longer reacted to the tickling of the soles of his feet (see the *Deutsche Medicinische Wochenschrift* for 1880, pp. 92-3, and Malten's *Der magnetische Schlaf*, p. 13). Berger, however, says that warm metal plates produced the same effect—one of the startling statements, too numerous in the history of hypnotism, which seem never to

crucial cases known to me have been of the *local* sort—specific effects produced, without entrancement, in special parts of the body, which the ‘subject’ did not know was going to be operated on. I will give a brief outline of these experiments, which have been carried out with three ‘subjects,’—the hypnotiser in every case being a gentleman who has for some years been acting as my secretary and has my complete confidence—Mr. G. A. Smith.¹

The ‘subject’ was made to put his arm through a thick screen, extending high above his head, and to spread his ten fingers on a table in front of him. The fingers were thus completely concealed from his view, and exceedingly quiet passes were made (or the operator’s fingers were simply held) an inch or two over one and another of them, according to my selection—with the result that in a very large majority of cases the finger so treated, and that finger alone, became rigid, and insensible to extremely severe treatment in the way of stabs, burns, and electric shocks. From my knowledge of the ‘subjects,’ and of the circumstances, I regard simulation as practically out of the question. But this is not really important, for the hypothesis of simulation has no application to the frequent cases where the rigidity was tested *before* the anæsthesia. The ‘subject’ was told to double his fist; and no desire to deceive could have taught him which particular one of his ten digits was to remain recalcitrant.

There seem to be only two possible ways in which the ‘subject’s’ finger could have felt the proximity of Mr. Smith’s hand—(1) by currents of air due to the passes; and (2) by a sense of warmth—Mr. Smith’s hand being warmer than the surrounding air. Such perception would have involved very decided hyperæsthesia in persons with tolerably pachydermatous hands, who (it must be remembered) were in a normal not a hypnotic state. I made trials once with three co-experimenters and none of us could in the slightest degree detect similar passes made over our own fingers; and the ‘subjects’ professed a similar ignorance. Still, the possibility of hyperæsthesia needed to be faced. In many of the earlier trials, to prevent the detection of Mr.

have been confirmed by other observers. Berger’s account of the stiffening of a sleeping person’s arm by passes closely resembles a case which I have observed (*Proceedings of the S.P.R.*, vol. i., pp. 259-60; but in Berger’s case the effect was produced through the clothes).

¹ For a fuller account of the earlier trials, see *Proceedings of the S.P.R.*, vol. i., pp. 257-60; vol. ii., pp. 201-5; vol. iii., pp. 543-9. The later cases are described here for the first time.

Smith's passes by currents of air, someone else made similar and simultaneous passes over another finger. But it might still be objected that some imperceptible difference in the manner of making the passes produced differences in the currents of air; and a far better method which I have employed in 20 later trials (as well as in a few of the earlier ones) is to dispense with passes altogether. Mr. Smith has held his hand perfectly still about a couple of inches over the selected finger; and the diminution of sensibility, though less in degree than when passes were made, has in every case (with possibly one exception) been quite unmistakable, while in nearly all the cases the rigidity has been sufficient to prevent the finger being quickly flexed.¹ Here, then, the only means of direct perception left open seems to be warmth. Perception by this means would involve hyperæsthesia in an extreme degree; and in this connexion I may mention that a scientific friend at Cambridge (whose results will in time, I trust, be published) tells me that he has produced similar effects, under similar conditions, with two sheets of glass between his hand and that of the 'subject'. But I believe that I have sufficiently guarded against the conveyance of information through warmth by holding my own hand, at the same distance as Mr. Smith's, over another of the 'subject's' fingers. After we have been for some time together in a warm room, Mr. Smith's hand and mine do not perceptibly differ in temperature; yet mine never produced any effect on the 'subject'.² Another fact of great significance is that I have now got both the 'subjects' on whom these recent experiments have been made to attend to their sensations during the process. They used to profess unconsciousness of any change whatever; but they are now able to detect which finger has been the subject of experiment by what they describe as a slight feeling of *cold*. That this should be the direct effect of the proximity of someone else's warm hand seems inconceivable, especially since the feeling lasts after the hand is removed; but it is perfectly easy to account for as a secondary result of the increasing numbness and loss of normal sensibility. It should be noted further that the effect was removed in just the same manner—that is to say, the proximity of Mr.

¹ In two cases the corresponding finger on the other hand, and in a third case an adjacent finger, was also slightly affected.

² I propose in some future experiments to apply the same test when the temperature of Mr. Smith's and my hands has been distinctly lowered and raised by immersion in iced and heated water.

Smith's hand was effective on a finger which had just proved insensitive to pretty vigorous pricks, and would not therefore be likely to be extraordinarily hypersensitive to warmth.

Now here what hypotheses are left as alternatives to that of direct influence? May the idea of the selected finger be conveyed to some 'unconscious' part of the 'subject's' mind by thought-transference, and there produce an expectation of anæsthesia and rigidity which works out the appropriate results? This seems excluded by the fact that the physical proximity of Mr. Smith's hand proves to be a necessary condition: the effects do not follow if he simply stands and *wills* their occurrence. Consequently the 'unconscious' perception will have to include the discerning of the approach or proximity of Mr. Smith's hand; and this, combined with the certainty of the results and the fact that the 'subjects' have shown little or no aptitude for thought-transference in other forms, is a strong reason for supposing the mode of communication to be physical, not psychical.¹ The alternative, then, to the hypothesis of a direct influence seems to be that an 'unconscious' discernment through the finger's ordinary sensory apparatus is followed by 'unconscious' expectation of particular physiological results, which in turn is followed by those results. Of this hypothesis I can only say that it seems to me extravagantly improbable, for three reasons. (1) It attributes to 'unconscious' expectation an effect which conscious expectation cannot bring about. I have on a good many occasions led the 'subjects' to believe that a particular finger was being operated on, when it was not; but no change in its condition ever ensued. Still, I would not press this particular point too far; as we are not justified in assuming an exact similarity between the capacities of the conscious and 'unconscious' divisions of the mind. A more serious objection is (2) that even in the 'unconscious' mind expectations cannot form without some grounds; and before confidence was established by experience, the 'subjects' were much more likely to expect that they *would* feel the very sharp inflictions to which their fingers were submitted than that they would *not*. This specially applies to a female 'subject' of very nervous temperament, who had no acquaintance with the physical phenomena of hypnotism, and who was ready to shriek at the very idea of a prick on

¹ The particular sense in which I use these words, and the word 'unconscious,' was explained in my last paper.

her fingers.¹ (3) The initial supposition, that a person whose conscious self is unaware of certain faint stimuli is 'unconsciously' hyperæsthetic to those very stimuli seems to me wholly unsupported and extremely dubious. I conclude, therefore, that the balance of probability is greatly in favour of a direct physical influence in which the ordinary channels of sense are not concerned. Whether this conclusion be right or wrong, I earnestly hope that the experiments may be widely repeated by persons who have proved themselves effective hypnotisers; for no conceivable explanation of the facts could deprive them of their exceptional interest.

There is one other alleged type of effect produced by physical proximity, without sensory communication, which deserves mention, though it has not yet, I think, been quite conclusively tested. Dr. Babinski, of the Salpêtrière, believes himself, and is believed by Dr. Charcot and other authorities, to have established the fact that a hysterical affection, produced in one 'subject' by hypnotic suggestion, can be transferred to another 'subject,' not in contact with the first, under the influence of a neighbouring magnet. The French *savants* do not seem completely aware how absolutely different such a phenomenon would be from those to which they compare it—the widely-alleged effect of a magnet in transferring hysterical affections from one side of the body to the other; but this is unimportant provided only they prove their facts. The objection to some, at any rate, of their experiments is that sufficient account does not seem to have been taken of the acuteness and cunning which hysterical women may bring to bear in some well-defined channel, while ostensibly in a state of hypnotic lethargy and inattention; without intending to deceive in any way involving real responsibility, such persons may still be quite capable of detecting what the expected effects are, and of producing them by clever collusion and simulation. This, however, is now becoming better realised; and I can vouch for the striking result of one trial, in which Dr. Babinski was good enough to allow Mr. Myers and myself to arrange the conditions. The two 'subjects' were placed in two rooms separated by a thick door; and a strong contracture of the foot produced in one of them certainly reappeared in the other. The only flaw was that the woman first affected made an exclamation in which the word *piéd* occurred; but she did not speak loud, and the remark was quite inaudible

¹ I was only able to have half a dozen trials with this 'subject,' as her fingers, when stabbed, bled to an extent which made me fear that they would cause her subsequent pain or annoyance.

to normal ears on the other side of the door, where a good deal of noise was going on.

And now a final word as to what the nature of the specific influence in these various results can be supposed to be. If it exists, as a property of living tissue, there can be no doubt, I think, that the tissue concerned is that of the nerves. This would be a probable surmise from the analogy of electrical induction, and from the affinity supposed to exist between nervous and electric currents—an affinity which would be manifest, even apart from the electrical properties of nervous currents, in the mere fact that the nerves are the only part of the body through which anything of at all the nature of a current (in the physical sense) passes. But a stronger argument is that immediate dependence of the influence on the brain, which is strongly suggested by nearly all the cases. The proximity of Mr. Smith's hand to the 'subject's' finger proved as ineffective, unless his attention was likewise concentrated, as his attention and 'will' had been without the aid of his hand; and, moreover, as I have said, exactly the same proximity of the hand which *produced* the effect also *removed* it—the only change being in the operator's intention. Similarly in the 'willing-game' cases, the agent's concentration seemed to be the express condition of the curious effect; and whether or not the same can be stated of Dr. Liébeault's therapeutical successes, it has at any rate been widely observed by other hypnotisers. It would seem, therefore, that the nerve-currents must receive their specific character, in part at any rate, from the character of the cerebration which accompanies this concentration; and, if so, then the influence is clearly *physiological* in character, not merely in the sense of belonging to a living tissue as such, but in the sense of being evoked at special moments by a special form of vital action. It has no analogy, for instance, to the alleged effects of particular substances, such as metals, applied to the human body; nor is it due to a material emanation with peculiar properties, such as would come into play if the effect were produced through the organ of smell. Though finding its nearest analogue in induced electric currents, and though best, perhaps, described as nervous induction, it is essentially vital and *sui generis*.

This very general statement is all, I think, that can be advanced with any positiveness. As soon as we try to analyse the processes further, our means fail. The cases described, though they agree in pointing to the power of one organism specifically to affect another, are puzzlingly dif-

ferent in their details. Dr. Liébeault considered that the nervous influence which he brought to bear "re-established the physiological functioning" of his 'subject's' organs. But how little apparent relation such a result has to the hysterical disturbances of the willing-game, or to the stiffening and anæsthetising of a young man's fingers! As to all difficulties of this sort, it seems enough for the present to remark that they ought not to be regarded as affecting in the slightest degree the general question as to cause and effect. Inasmuch as our ignorance concerning the details of the nervous governance of the human organism is very nearly complete in respect of processes where the fact of the governance is universally admitted, the absence of a satisfactory physiological account of the intermediate stages ought not to weigh a feather in the decision whether the ostensible affection of one organism in some unknown way by the proximity of another is demonstrated or demonstrable by evidence. That, even if the general fact were incontrovertibly established, its various modes of manifestation and their complete physiological history should remain obscure is exactly what we should *a priori* expect. I will only add that cases of the Salpêtrière type, and cases of a sanative influence produced by an operator who is himself in vigorous health, would accord with the view advanced in my last paper as to the transmission (supposing it to have any physical basis) of telepathic impressions,—namely, that the process resembles those where a physical force, acting by vibrations through a medium, *reproduces* itself at a distance in its original form, as in the case of sympathetic tuning-forks or induced magnetism. The resemblance does not hold, however, in the other results—*e.g.*, in the finger-experiments, where the hand operated on assumes a quite different condition from that of the hand that operates; and so far as the evidence supports a definite view, it points to another or a further process than the sympathetic or simply reproductive, as involved in many of the cases of supersensory transference where the organisms concerned are in close proximity to one another. I cannot forecast whether science will ever address itself with success to such problems as these. I should be content if any of my readers were led to regard as within the possibility of scientific acceptance the broad fact that certain supersensory and non-mechanical transferences take place which belong to the domain of physical and physiological, and not merely of psychical, research. Such transferences stand a better chance of consideration as examples of 'nervous induction' than as a branch of telepathy.

V.—DISCUSSION.

SUBJECT AND OBJECT IN PSYCHOLOGY.¹

By SHADWORTH H. HODGSON.

The question which I am commissioned to bring before you this evening is—what, if anything, is designated by the terms *Subject* and *Object* in psychology. The meaning of the terms in psychology is what is sought; a question to be answered for the use and behoof of psychology. Nevertheless its settlement will require us to have recourse to philosophical considerations.

There are two reasons for this: first, because the use and meaning of the terms in psychology are commonly mixed up and confused with their use and meaning in philosophy; and secondly, because the terms are originally philosophical, by which I mean, that they belong primarily to that group of questions which relates to the nature and reality of Existence and the knowledge which we have of it, the nature and meaning of the term *Existence* itself.

I may also be allowed to remark, that many of the most perplexing puzzles and differences of opinion arise from insufficient demarcation of the limits and boundaries of different branches of thought, and that they would often be put in a fair way of solution in the one case, and of agreement between disputants in the other, if these limits and boundaries were settled, and the terms in dispute could thus be referred to their proper niche in the World of Thought.

Of this the terms *Subject* and *Object* are a striking instance. They are often used as if they were names of two sorts of supreme or ultimate entities, or even more specifically as simple equivalents of the terms Mind and Matter. This, in my view, is robbing philosophy, without enriching, but rather thereby embarrassing, psychology.

The beginning may perhaps best be made by referring to the well-known distinction of Descartes, between *cogitatio* and *res cogitans*. The first great question for psychology is—*What is the res cogitans?* This, whatever it be, whether material or immaterial, physical or non-physical, is the *Subject* in psychology.

Now this, the Subject, is opposed to *cogitatio*, its own *conscious* action or functioning, its own functioning so far as that functioning is consciousness, that is, to the modes or series of states of consciousness, which attend on its action. But these are not its *Object*. The Subject in psychology is opposed, not to its object,

¹ A Paper read to initiate a discussion, Tuesday, March 29, 1887.

but to its product, its concomitant and dependent consciousness, its *cogitatio*.

What then is the *Object*? Here we come to the distinction which is in question this evening; and this distinction is a distinction of *philosophy*. *Object* means—object of thought, of perception, of imagination, memory, and so on, or briefly of consciousness, of Descartes' *cogitatio*. The rôle of the Subject is here altered. It is *cogitatio* which is subjective to its objects; they are objects of it. The *res cogitans*, the Subject in psychology, is an object, among others, in philosophy. And as already said, the question is still open, whether this object of thought, the Subject in psychology, is material or immaterial, an organism or a soul.

Observe the confusion which is thus brought to light in the conflicting meanings of the term *Subject*, the reversal of the part which it plays, first as Subject of its own function, consciousness, then as Subject of the things known by means of its function, *itself included*. It appears to exist at a deeper depth in subjectivity than consciousness, *cogitatio*, itself, seeing that this depends upon and accompanies its action; it seems to be the source of consciousness, the source of itself as known to itself in and by consciousness; the perennially active but necessarily hidden fountain which throws up, and as it were *objectifies itself* in the form of consciousness and all its content, all its objects. The psychological view of the Subject, when not corrected by the philosophical distinction of Subject and Object, thus leads directly to a conception which is essentially the same as that of the Transcendental Idealism which sprang from Kant, and which has ever since deluged Germany.

But it is not with the results of this neglect of a philosophical distinction that we have now to do. We are concerned to-night rather with its cause than its consequences—how more particularly is the confusion brought about; at what point in the chain of thought does the departure from logical rigour occur, which leads ultimately to the monstrosity of the self-creation of the Subject? Now, the precise flaw, or point of divergence from logic, at least as it seems to me, is this. The Subject in psychology is carelessly and inaccurately identified with the *Ego*, and moreover with the popular or unanalysed conception of the *Ego*, as it appears in common parlance. We always think of our self as having something, doing something, or aware of something; as possessing faculties; as willing, thinking or feeling. This identification is clearly seen in Descartes' argument, *cogito ergo sum*—I think, therefore I am—the word *am* meaning, with him, am a soul or Subject, a *res cogitans*. But what is the fact, what is the truth about this inference? Let us see.

The *Ego*, the "I," does not belong *primarily* to psychology at all. Its meaning, its characteristic, is derived entirely from *cogitatio*; it is that feature of *unity* of consciousness which accom-

panies, or is bound up with, all distinct consciousness whatever. It is an inference, an *ergo*, that consciousness with its unity requires a Subject, a *res cogitans*, to sustain it. But this inference cannot be an immediate inference, a *consequentia immediata*, though Descartes himself, no doubt, supposed that it was so. (See MIND i. 568-70.)

The only immediate inference from *I think* would be—therefore *my thought exists*. That *cogitatio* requires a *res cogitans*, or my thought a “me,” to possess it or exercise it,—this inference is derived from something in the content of the *cogitatio* over and above the mere fact that *cogitatio* takes place. The perception or idea of a *res cogitans* exercising or possessing the *cogitatio* is no necessary or universal feature of *cogitatio* simply. It belongs to the popular, pre-philosophic, and unanalysed conception of the *Ego*, which is the fruit of long association hardened into habit.

As M. Fouillée well puts it, in *La Liberté et le Déterminisme* (2nd ed., p. 82): “Ce qu’il y a de certain dans le *je pense*, c’est le *penser*, ce n’est pas le *je*. Le vrai et seul évident principe est le suivant: *la pensée est; il y a de la pensée, il y a de l’être, il y a de la conscience*.” This part of the content of the *cogito* is the only thing warranted by immediate inference, the existence of my consciousness, of my *cogitatio* itself. And why is this warranted? Because in consciousness or *cogitatio* the consciousness or *cogitatio* is immediately perceived, is its own object or content, every moment of it, as it becomes past, becoming also content or object of the then passing or present moment; of which again, in the next moment, the same thing will be true. Then it is that, from the experiential point of view, we say that it exists. (See MIND ii. 128-30.)

Here, in my opinion, is the precise source of the fallacy. First, the *Ego*, the “I,” is identified, unanalysed, with the Subject in psychology. And secondly, the *Ego*, the “I,” is in popular, pre-philosophic, that is, pre-analytic thought, a double-mixed, or two-fold something. It is agent and action, conscious agent and consciousness, in one. This popular, pre-philosophic, and pre-analytic conception of the “I” is carried over *unanalysed* into psychology, when the “I” is identified with the Subject. Whereas logically, what ought to be carried over into psychology under the name of the Subject,—of course *after* analysis instituted,—is the *agent* or *agency* in the popular conception of the “I,” *minus* the function, the *cogitatio*, the consciousness. The consciousness is opposed properly to its objects, and the distinction of Subject and Object, meaning *knowing* and *that which is known*, remains with philosophy, the institutor of the analysis. The idea of thought, *cogitatio*, consciousness, as well as that of the Subject, evolving its objects out of itself is then seen to be utterly baseless and unwarranted, so far as experience goes.

It will repay us to compare Kant’s proceeding in this matter

with that of Descartes. Kant sees plainly enough (*K.d. r.V.* Note to the "Widerlegung des Mendelssohn'schen Beweises der Beharrlichkeit der Seele," pp. 308-9 of Hartenstein's edit. of 1853) both that the *Ich denke*, Descartes' *cogito*, expresses an experiential fact, is what he calls an "*empirischer Satz*," and also that it does not carry with it the existence of the *res cogitans* as an immediate inference. In fact, to warrant that inference two things must have been perceived immediately and together, first, the self-consciousness, the *cogitatio*, and second, the fact that self is an agent; and this in the simplest moments of consciousness, that is to say, in consciousness simply as such, is impossible.

It becomes possible to embrace these things in a single moment or glance of consciousness, *uno intuitu*, only when we have previously formed and become familiar with the ideas of *agent* and *agency*, or *action*. And this in consciousness simply as such is impossible, unless we suppose that consciousness exists and works in certain forms, nameable as ideas or conceptions, with which it is furnished and prepared simply as consciousness, or without which it would not be consciousness, *cogitatio*, at all. On this assumption the existence of the *Ego* as *res cogitans* would follow immediately from the content of the *cogitatio* itself. But it does not follow immediately from the content of the *cogitatio* alone, without this assumption, because in the content of consciousness, taken simply as such, we are *not* conscious of any such forms, ideas or conceptions. In short, Descartes mistakes a comparatively late and derived content of consciousness for an original and necessary one.

What course, then, does Kant take? He straightway invents a faculty, the *Verstand*, which shall be furnished with certain *a priori* forms of thought, the Categories, and which, in conjunction with another faculty, the *Anschauung*, shall have the second of the two perceptions mentioned above; that is, shall be aware of its own action, as an action, upon the sense-matter furnished to it by the *Anschauung*, and thus warrant an assertion similar to Descartes' inference, *ergo sum*. These two faculties belong, by his hypothesis, to a higher unity, a Transcendent Subject, and thus the fact of reality in the Subject is upheld, as with Descartes, but only by means of the transcendental hypothesis, and, in the last resort, only in reference to the Transcendent Subject. (See *K. d. r.V.* "Transcendentale Deduction der Verstandesbegriffe," in 2nd edition, particularly § 16 and Explanation appended to § 24, pp. 123 and 135-6 in Hartenstein's edition of 1853.)

Descartes erred, not indeed in supposing that some immediate inference was warranted by the *cogito*, but in changing the sense of the *Ego* in passing from premiss to conclusion, owing to his defective analysis of the *cogito*. The word "I" is simply designative in the premiss, *cogito*, a popular way of expressing the fact of *cogitatio*. In the conclusion, *ergo sum*, the "I" becomes *res*

cogitans, a very different thing. Kant, instead of giving a direct and independent analysis of the *cogito*, the experiential fact upon which everything hinges, expends his ingenuity in inventing conditions of the *cogito*, conditions which make *cogitatio* possible, and analysing *them*; that is, in inventing a system of hypothetical faculties, belonging to a hypothetical Transcendent Subject, the combined action of which shall have the *ergo sum* as their apparent or phenomenal result, a result which shall be explicable only as a manifestation of the supposed noumenal and transcendent reality. This surely is a false direction in philosophy; it is psychology superseding philosophy by making an unphilosophical assumption.

Common both to Descartes and Kant is the purely *a priori* assumption, that a simple state of consciousness not only announces its own existence, but announces and must announce the existence of its cause, a conscious being. And by an *a priori* assumption I mean one drawn from notions prior to philosophy, the fund of notions which are the stock-in-trade of uncorrected common sense. Both philosophers alike are penetrated, dominated, saturated, by this totally unfounded assumption; an assumption, be it noted, which Kant spent the whole latter half of his life in elaborating into a theory, the Critical and Transcendental Philosophy.

The truth is that the notion of the *Ego* as a *res cogitans*, a real agent, is a derived notion, but not necessarily on that account a false one, derived from the content of the *cogitatio*. If that be so, then the true business of philosophy is to trace the steps by which it has been first derived, and ultimately established, as a familiar and indubitable notion of common sense. Everything in philosophy depends upon whether you assume this notion *a priori*, or deduce it from experience. The kindred errors, as I needs must call them, of Empiricists and Transcendentalists alike flow from making an assumption of it. The former, in place of the simple fact of Reflective Perception, *cogitatio*, substitute a Mind in presence of external things, and the latter a Thinking Subject constructing and constituting them. It is true that, at the beginning of the inquiry, *cogitatio* must be taken simply as a fact, with its genesis or possibility as yet unexplained, and all questions as to it postponed. It is better to postpone the question than to answer it at once by an assumption supposed to be indubitable. And I think it is obvious, that assumptions like these must vitiate the whole course of the speculations founded on them, to say nothing of the contradictory character of the assumptions to one another.

In reality philosophy and psychology alike spring out of ordinary pre-philosophic experience, by applying analysis to its phenomena; and they divide between them its goods, the partition being based on the analysis. Not that the goods, the phenomena of common sense, when analysed, are done with, out

of court, or valueless. Far from it. They remain as the means whereby to test the accuracy and exhaustiveness of the analysis. Knowledge is book-keeping, so to speak, by *treble entry*—common sense, science and philosophy. The accounts of all three must tally. There are no other lines of thought but these three, their modes and combinations of modes. The common-sense ideas of agent and agency, for instance, or those of reality and the real, are at once a standing challenge and a standing test of philosophic and scientific analysis. Either philosophy or science, or both, have to give back to common sense these which are its own ideas analysed. The ideas and their analysis are but different ways of regarding one and the same common universe, the very existence of which, as their common object, is known to us in no other way besides the three mentioned. The analysis of an idea means the constituent ideas, parts or elements composing it, with the manner of their combination. If there is anything in the idea which is left out and unaccounted for, neither explained as an illusion, nor its equivalent given in the analysis, its place must be marked as unfilled, the idea left to that extent a blank, and the required element acknowledged as unknown. Agreement between the three lines of thought, with regard to all ideas whatever, is the final end proposed by the investigation.

The common-sense idea "I" is no exception to this law, and some attempt at analysing it has been made above. According to that analysis, whenever the words *Ego* or "I" are used either in philosophy or in psychology—as of course they must continually be, seeing that in no discussion can we get on without them—it should be remembered that they express a *mixed* being; namely, unity of and in consciousness *plus* that part of the operation of the Subject which is required to sustain it. Now a part is not the same thing as the whole, and the operative agency in the *Ego* is not the whole Subject. It is probable that many operations of the Subject never attain to be accompanied by distinct consciousness at all. And to determine what particular portion, or what particular operation, of the Subject is that which is accompanied by the perception of self, is perhaps one of the most important and difficult problems in psychology.

But it is time to return to our main question. The *Ego* is an agent so far forth as it is part of the active operation of the psychological Subject; and the *Ego* has objects so far forth as it is itself part of *cogitatio* or consciousness.

But no argument for the immateriality of the Subject can be drawn from the fact, that the *Ego*, taken *per se* and primarily, is a mere unity of and in consciousness, that is, has that sort of immateriality which consciousness, the world of thought, has in contrast to *res existentes*, the world of reality, which is commonly thought of as material. If the Subject is immaterial, its immateriality must be of another kind from this, must be the immateriality of an agent, and not that of a state of consciousness.

Nor is this distinction between the *Ego* taken *per se* and the Subject an idle subtlety of speculation. One important result at any rate it possesses, which is to serve as a basis or fundamental *aperçu*, rendering possible the solution of that puzzling problem in psychology, the phenomenon of dual and even plural personality, one personality alternating with others in the consciousness of one and the same psychological individual; since the *Ego* taken *per se*, the unity of and in consciousness, is plainly transferable to any train or trains of association which may happen, through disease or other causes, to have exclusive possession of the activities of the Subject at any one time.

Finally, the Subject in psychology,—whether it be immaterial soul (or mind) or material organism,—when referred to the philosophical distinction of Subject and Object, belongs to the Object, not the Subject, half of that distinction. It is *that* object which is inferred as the proximate real condition of subjectivity, *cogitatio*, or consciousness. The term *Object* on the other hand has, so far as I can see, no technical meaning or definition in psychology at all; supposing always that psychology keeps strictly to its proper province, which is that of investigating the genesis, government and behaviour of consciousness, as a function of an individual existent Subject, without trespassing on questions of philosophy concerning the nature and reality of existents generally, as evidenced by consciousness. The uses to which it is most frequently put in psychology are supplied and satisfied by the term *real condition* of perceptions, thoughts, presentations, representations, sensations, emotions, and so on; meaning those realities and real events, not included in the Subject, upon the interaction of which with the activities of the Subject corresponding states of the Subject's consciousness are conditioned to arise.

RECENT DISCUSSION ON THE MUSCULAR SENSE.

By W. LESLIE MACKENZIE.

Recent discussion on the muscular sense involves four questions: (1) Is there muscular sense at all, or sensibility specifically muscular? (2) What is the nervous mechanism attending muscular feelings, and what relation has it to consciousness? (3) In what parts of the central nervous system are muscular feelings represented? (4) How do the answers to these questions affect the psychological antithesis of movement and sensation?

(1) *Is there a Muscular Sense?* This is not a superfluous question. Dr. Ferrier many times in his last edition of *Functions of the Brain* speaks of the "so-called" muscular sense, meaning, as he elsewhere tells us, that such a "complex assemblage of impressions of different categories" has no claim to the title of "sense". Prof. W. James and others hold a like view. Per-

haps the chief objection to "sense," strictly taken, arises from the doctrine of the "out-going current" commonly associated with "muscular sense". This at least is the impression one gets from reading the recent discussion at the Neurological Society, where the chief dividing question was as to "in-going" or "out-going" current. But clearly one may ask if there is a sensibility of muscle, without committing oneself to any doctrine of "in-going" or "out-going" nervous current, and this M. Beaunis (*Revue Philosophique*, March, 1887) has done in an ingenious experiment.

To determine whether the sensibility called muscular is to be attributed to the muscles themselves or to the skin and neighbouring parts, M. Beaunis experimented on the larynx. The movements of the vocal cords in singing are remarkable for their delicacy and precision, and differences of tension in these cords reckoned by fractions of a millimetre influence in a perceptible way the accuracy of the sound. There are two possible sources of guiding sensibility: first, the mucous membrane of the larynx; second, the muscles. These M. Beaunis proposed to separate by paralysing the sensibility of the mucous membrane. "*If the voice remain accurate*, then the sensibility of the mucous membrane does not regulate the differences in tension of the vocal cords. These differences, therefore, can be regulated only by the muscles of the cords. Therefore there is muscular sensibility. *If the voice become false . . .* then the sensibility of the mucous membrane intervenes; there is no true muscular sensibility; the muscular sense does not exist. Finally, it might happen that the voice, without becoming altogether false, showed a certain change, more or less marked, in accuracy. In this case both would be involved at the same time in graduating the tension of the cords—the sensibility of the mucous membrane as well as the muscular sensibility." To paralyse the laryngeal mucous membrane M. Beaunis employed cocain. He secured as a subject a practised singer, familiar with laryngoscopic examination and intelligent enough to analyse his feelings and grasp the import of the experiment. He first made the subject—a tenor—sing, without accompaniment, a pretty long air of moderate difficulty; the emission of sound was good, the voice accurate and of good quality. He next applied to the vocal cords with a brush a solution of cocain. The subject then sang the same air, first three minutes, then eight minutes, after the application of the cocain. The singing was less satisfactory than at first; the quality was less mellow, the sound less pure. But in accuracy the voice was the same. Laryngoscopic examination at this stage showed the edges of the true vocal cords pale, and on them some small masses of mucus. When the action of the cocain was exhausted, M. Beaunis applied a solution stronger than is usually applied to the larynx. With this the lips of the glottis became pale, for the small vessels of the mucous membrane were contracted. The subject then began the same air again, first three minutes, then six minutes, after the

application. The result was the same as before, a little more accentuated perhaps, but always more from the point of view of sweetness of quality than of accuracy in pitch.

M. Beaunis then made his subject go through some vocal exercises—sustaining a long note and trilling. The subject was able to sustain a note for twenty seconds, just as in his normal condition, and his trilling after the first effort was good. Laryngoscopic examination at this stage showed the edges of the glottis pale, the rest of the mucous membrane a little red. The glottis and the posterior surface of the epiglottis were not sensitive to contact. Finally, on testing with the tuning-fork, M. Beaunis found that the voice had remained true all through the experiment.

From this series of experiments M. Beaunis infers that there is a true sensibility of muscle, independent of skin and surrounding tissues. One possible error he points out, namely, that the physical change produced in the mucous membrane by the cocaine may act mechanically on the muscles, and in a certain measure give rise to contractions in them.

This experiment, provided it be repeated and corroborated, should go far to settle the specific sensibility of muscle. The larynx for delicacy of indication one may compare to the myographs of the physiological laboratories. Nowhere else among voluntary muscles can one isolate so readily the muscular and cutaneous, resistance and pressure. If the experiments of M. Beaunis should be confirmed, there is no further need to speak of muscular sense "so-called"; we may regard the specific sensibility of muscle as demonstrated.

(2) *The Nervous Mechanism involved, and its relation to Consciousness.* This was the chief dividing question at the meeting of the Neurological Society, December, 1886, so fully reported in *Brain*, March, 1887. One cannot say that the discussion, headed by Dr. Bastian's long and carefully elaborated paper, has forwarded much our knowledge either of fact or of theory. There is too much misunderstanding as to the precise point in dispute, and there is too little separating of questions. Surely there is a lack of thoroughness somewhere when Dr. Hughlings Jackson can complain that cases hitherto regarded as obviously on one side are now quoted on the other. Such misunderstanding ought not to be possible among scientific men. The misunderstanding arises chiefly on the interpretation of cases, the distinction of sensory and motor, and the implication of consciousness and of will.

(a) *Dr. Bastian's cases.* The case recorded by Demeaux (*Brain*, p. 11) shows the loss of muscular sense, of deep and superficial sensibility, and the consequent ignorance of movement and position. The power of voluntary movement remains. One is surprised that Dr. Bastian emphasises the ignorance of movement and passes over without remark the fact of voluntary power and its cerebral concomitant. Yet if we wanted a case that should separate afferent from efferent in muscle, this is one: there is no sensibility, no sense of pressure or of resistance; when directed

to move the patient moves as directed ; when her movement is resisted unknown to her, she imagines the intended movement accomplished ; she has a feeling of energy given out. Surely this fact is not less important than the ignorance of position ; and we imagine this fact tells in favour of a motor concomitant of volition. It may be that this feeling of energy given out is due to afferent processes ; but there is nothing in the record to suggest that, and Dr. Bastian nowhere proves it. To one or two other cases almost the same remark applies ; they illustrate and almost demonstrate the ignorance of position due to paralysis of afferent nerves, but they demonstrate nothing regarding the central concomitant of conscious movements.

(b) *The distinction of Sensory and Motor.* In spite of Dr. Hughlings Jackson's protests long ago, recent discussion has been too much bound to this couple. The distinction, as Prof. Haycraft insists, is a purely provisional one. "If at any time certain cells in this intercommunicating network were looked upon as the special seat of sensation and others as the seat of motion, it is impossible so to view them now. As a result of the passage of an impulse through the nervous system, we may have muscular movement and we may have sensation, but in the nervous paths through which the impulse passes it is not possible to say that one part is more motor than another, or to localise sensation to a given spot. . . . The cells in the cortex are on a loop between the sensory and motor cells of the cord. . . . They are trophic, and perhaps they act like collections of combustible materials placed on a train of gunpowder." This agrees with what Dr. Jackson says—that the physiological substratum of every mental process is a sensori-motor process. And it seems not unlikely that sensory and motor processes will ultimately be expressed in terms of a more fundamental distinction—the anabolic and catabolic changes of nerve-protoplasm. Already the process of inhibition is regarded as probably a building-up or anabolic change.

(c) *Relation to Consciousness.* In arguing against the concomitance of feeling and central nervous discharge, it is commonly assumed that afferent processes are always accompanied by consciousness. But to the physiologist consciousness is a shifting affair. Not all processes that reach the cortex are conscious ; and some are at one time conscious, at another not. Yet in the general statement of the concomitance of consciousness with afferent processes, this variation does not count. Similarly with motor processes. The problem is not how much at any given moment is in the field of consciousness, but what must we imagine the physiological substratum of a given state of consciousness to be. The question of concomitant consciousness is in fact a case of "cerebral time": at what point in the sensori-motor process does consciousness arise. If, with Dr. Ferrier, we confine consciousness to sensory processes, then, since sensory may excite motor processes, we must imagine consciousness suddenly ceasing on the nervous bridge—the internuncial fibres

—between a sensory and a motor centre. If this be so, the time has come for abolishing altogether the distinction of sensory and motor cortical centres; they are all sensori-motor.

(d) *Implication of Will.* "The conflict of mental moods or motives," says Dr. Bastian, "is sometimes slight and sometimes complex (entailing what we now term inhibitory processes), before what is called a resolution or Will to do a certain action is arrived at. As Hobbes quaintly says:—'The whole sum of desires, aversions, hopes and fears, continued till the thing be either done or thought impossible, is what we call Deliberation'. Here then we have intellect in action, with absolutely nothing of motor activity concerned with its manifestation" (*Brain*, p. 135). Further on he describes fibres as issuing from certain regions of the cortex, and by means of these "our Intellect plays upon subjacent motor centres when we desire to perform this or that so-called 'voluntary action'". This "playing" ends in movement.

Dr. Bastian gives this doctrine as a complete displacer of the "out-going current" theory of Dr. Bain. But "intellect in action" means physiologically the action of cortical centres: these excite motor processes; and what initiates a motor process is to all intents and purposes motor—an "out-going current". One may call it sensory or kinæsthetic; that is mostly a matter of terms.

(3) *Cortical Localisation.* There is no agreement either on the localisation of movements in general or of muscular sensations in particular. The interpretation of "motor centres" is far from complete; in fact we must use the words "motor" and "sensory" centres as provisional.

(4) *Psychological Import of Muscular Sense.* The tendency of recent discussion is to put more stress on afferent impressions than on efferent processes. The impressions from skin, fasciæ, ligaments, joints, and from the sensitive nerves in muscle, are thrown together as the physical side of feelings of movement. I have, above, repeated some possible objections to this position; but even if it were demonstrated, a difficulty remains. As a psychological fact, feelings of movement—that is, feelings of energy expended—are radically opposed to passive feelings or sensations. If, therefore, feelings of movement are, like sensations, the mental side of afferent processes, how is it that feelings of movement are opposed to all other feelings? What peculiarity in their nervous substratum corresponds to this antithesis? This is not fully explained yet, and when it is explained the psychological fact remains precisely where it was. The question of the conditions of the "muscular sense" is a purely physiological matter, and if feelings of movement are not concomitants of the "out-going current," then, as Prof. Bain has said (*Senses and Intellect*, 3rd edit., p. 77), "the most vital distinction within the sphere of mind is bereft of all physiological support". That is all.

ON THE DOCTRINE OF NATURAL KINDS.

By M. H. TOWRY.

During a long study of Taxonomy, it has repeatedly seemed to me that some obscurity and indefiniteness, if not error, hangs around Mill's doctrine of Natural Kinds, and it is rather to draw forth the views of others than to gain expression for my own ideas that I take up the subject in this paper.

I fancy most logicians will agree with me that the keystone of the process of classifying is the doctrine of extension and intension; that the *fundamentum divisionis* is a purely subjective conception; that Discrimination, Abstraction and Generalisation are our working tools in construction; that the whole purport of classifying is the mental methodisation of our knowledge of individuals. Could the mind grasp and retain a full presentation of each Thing, instead of thinking in sequence, the contrivance would be needless.

Further, numerical enumerations are the only classifications that proceed on extension alone; arrangements based on pure intension would be equally unfruitful of results. The only legitimate classifications work on extension, proceeding by intension.

Now, it appears to me that Mill's doctrine of Natural Kinds controverts the whole procedure and *modus operandi* of logical classifying, rests on an arbitrary and untenable proposition, and stands in his theory, like the pillar of Roslin chapel, irreconcilable with the rest of the structure. Moreover, it is alien to the actualities obtaining, so that on both counts it surely should be examined, and either be remodelled or replaced by a truer doctrine.

To make out my indictment it will be needful first briefly to glance at uncontroverted points of theory, in order to demonstrate what an alien stumbling-block the doctrine introduces.

The Predicables were originally not a formal scheme of Classification, but an outline of the co-relations of General Terms. The basis selected by logicians on which to found an exhaustive comprehension of General Terms was that of the relation between the subject and the predicate.

Of the two general terms which form the subject and predicate of any proposition, one, they said, might stand to the other in any one of five relations. Hence it followed that, as these distinctions were entirely relative, some general terms might be, in different sentences, either genus or species, and others either differentia, property or accident. In a short time this meaning of the Predicables was laid aside, and the names were used in the formal analysis of classifying which laid down the requisites of correct diataxis and subdivision. The Predicables were applied not to the general terms, but to the divisions and attributes themselves, and this meaning has so largely displaced the former

that in many treatises of logic the earlier is not noticed. Lastly, four of the Predicables have been a third time appropriated, and ~~are~~ used by biologists in a technical sense.

By means of Likeness (an ultimate element) Things are to be thought of "in those groups respecting which a greater number of general assertions can be made, and those assertions more important than could be made respecting any other groups into which the same things could be distributed" (Mill).

After all this arranging of Things by means of intensive attributes mentally abstracted from the things (for subject and attribute are in reality one, as Prof. Bain and Mill emphatically show)—after all this, we are told that there are in nature Divisions of Kind, bounded by impassable barriers. At first sight this seems an unlooked-for harmony of the actual with the theoretical. Here are Classes ready formed for us. But let us listen to their definition and criteria, and perplexities thicken.

Mill says that a Kind is one of those classes which are distinguished from all others, not by one or a few definite properties, but by an unknown multitude of them; the combination of properties on which the class is grounded being a mere index to an indefinite number of other distinctive attributes, and instances Plant, Animal, Sulphur, Horse, &c., as Kinds. Sometimes the properties on which we ground a class exhaust all that it has in common, or contain it all by some mode of implication. In other instances a selection is made of a few properties from a number inexhaustible by us. Where a certain apparent difference between things (though perhaps in itself of little moment) answers to we know not what number of other differences pervading not only their known properties, but properties yet undiscovered, it is not optional but imperative to recognise this difference as the foundation of a specific distinction. He tells us that there are in nature distinctions of Kind, that they are parted off from one another by an unfathomable chasm instead of a mere ordinary ditch, and that our knowledge of the properties of a kind is never complete. See *Logic*, bk. i. c. 7; iii. 22, 25; iv. 6, 7.

OBJ. 1. It is plain, from the above doctrine, that we cannot form our Classes that are Kinds on the basis of attributes, as logic has heretofore directed us to do. We cannot tell what many of the attributes are, nor are we to expect to do so. Yet we have made the group. But how? By connecting the things through some few attributes they have in common, and then, desisting from working by intension, grouping them, as it were, in extension, and postulating that they must have unknown common attributes. Is this procedure reconcilable with Mill's own analysis of the classificatory process?

OBJ. 2. Two criteria are given for determining whether a made class is a Kind. First, that a Kind shall have an *unknown* multitude of properties, not merely derivable from one another, the combination of properties on which the class is grounded being a

mere index to an *indefinite* number of other distinctive attributes. If a large part of these qualities are unknown, and "infinite, so far as we are concerned," what grounds have we for affirming that the Natural Kind possesses them? How can we build a class on an *a priori* supposition? Further, how can we be justified in framing a class upon such a changeable and subjective point as our own ignorance? Why should that enter as a factor into Divisions of Things? Surely the number of properties belonging to a group and our hopelessness of discovering them are two points that are wholly alien to the question of the group-formation. *That*, Mill has told us, is regulated by the quantity and importance of statements concerning the group which shall be applicable to the members. If many and important identical statements can be made concerning such and such things, group them. Good. But what statements can be made about an unknown multitude of attributes? Hitherto we have classed things on account of their recognised resemblances, not on account of their assumed and as-yet-unfounded ones.

It is undeniable, of course, that of things agreeing in only one bond of likeness (*e.g.*, colour, shape, specific gravity, &c.), only one general assertion and its corollaries are possible. And that of a Kind, as Horse, or Animal, or Sulphur, many general assertions are possible. But the one class is no whit less a merely intellectual creation than the other. Yet it is juster, it will be said. More useful to us, doubtless, but not more objectively true. More useful to us is what underlies Mill's remark, that it would be a palpable absurdity to investigate the common properties of all white things. But Nature has in reality neither the class White Things nor the class Horse. We made both. Mill, however, would say that in the latter case there is a distinction *answering* to our class. Well, then, so there is, in the former. There are a quantity of things in the universe, alike in point of being white; there are a quantity of things alike in points *a b c*, &c. = Horses. The properties are not found by the Kind, but the Kinds are formed by the properties.

OBJ. 3. The second criterion of Kinds is that they wholly differ from each other, whilst non-natural Kinds differ only in finite and determinate particulars. Roses and Brambles are not natural Kinds, because a rose does not seem to differ from a rubus, or the Umbelliferæ from the Ranunculaceæ in much else than the characters botanically assigned to those genera or those families. All Kinds, Mill says, must have a place amongst classes, but all classes in a natural arrangement cannot be Kinds, for the distinctions of Kind are not numerous enough to make up the whole of a classification. "The great distinctions of Vascular and Cellular, Dicotyledonous or Exogenous, and Monocotyledonous or Endogenous plants are perhaps differences of Kind. The lines of demarcation which divide those classes seem, though even in this I would not pronounce positively, to go through the whole nature of the

plants." But he gives Horse, Animal, Sulphur, Phosphorus, Diamond, Gold, as examples of Kinds. Now are there absolute lines of demarcation, unfathomable chasms, between those classes? They greatly differ from each other, but not wholly. Is it not in reality a question of degree between their likenesses and those which connect Rose and Rubus? Great degree, doubtless, but still only of degree. Is the criterion theoretically tenable?

OBJ. 4. But now let us turn to actualities. Are there in Nature classes clearly marked off from each other, classes to be sought for by us? "*La méthode naturelle*," wrote Cuvier, "*est l'idéal auquel l'histoire naturelle doit tendre; car il est évident que si l'on y parvenait, l'on aurait l'expression exacte et complète de la nature entière.*" Such was the old view of a natural method, that it was nothing less than a reproduction of a certain orderly arrangement obtaining in the universe, waiting to be deciphered by man. When anomalies cropped up they were, if not too many and too weighty, relegated aside and labelled anomalies; but if too overpowering, it was held that the right basis had not been chosen, or, to use a familiar phrase, a wrong key had been tried. But now there is a tendency to see that so-called anomalies are as legitimate facts as other characters. The old idea was a case of seeing double. There are no natural-made groups behind our groups. It is the endless seeking for this shadow in the stream that has so often misled us.

I may quote some pertinent words of Prof. Newton of Cambridge:—

"The one merges insensibly in the other, as do the race, the species, the genus, and so on. There was a time, and that not long since, when each of these groups was looked upon as a concrete entity having an independent existence, and some men there are who still so regard them; but whether that belief is destined to be perpetuated or restored may well be questioned. It would seem, rather, that each of these groups exists as a group but in the abstract."

Prof. Asa Gray is equally emphatic:—

"The groups which we recognise and distinguish as Genera, Tribes, Orders, &c., are not always, and perhaps not generally, completely circumscribed in nature, as we are obliged to assume them to be in our classification. This might be expected from the nature of the case. For the natural groups, of whatever grade, are not realities, but ideas. Their consideration involves questions, not of things between which absolute distinctions might be drawn, but of degrees of resemblance, which may be expected to present infinite gradations."

Much more might be cited against the theory of "classes in Nature parted by impassable barriers," but I content myself with pointing out how entirely alien to this theory are the experiences of the constructors of natural methods. All who have worked in that field know that the individual is often indeterminable; that the species cannot be fixed; that the qualities of species do not remain constant; that a regular progression cannot be obtained;

that there is not progressive complexity in time or space; that the groups, when formed, are most unequal in size; that they are unequally related; that extinct species (estimated by Sir J. Lubbock at two millions) present a stumbling-block; that so do parasites and abnormal forms; that invariable conjunctions are very few in number; and that even the great fundamental divisions are not irrevocably invariable.

Whewell held that Natural Kinds are determined by a type, around which all individuals which exactly and partially approximate are grouped; that the central nucleus is, as it were, fixed, while the edges fluctuate. But Mill holds that to determine by type would be as sure a way of missing the Kind as arbitrary selection of characters; and that the problem is to find a few definite characters which point to the multitude of indefinite ones. Kinds are classes between which there is an impassable barrier, and we have to seek on which side an object takes its place.

Whewell's type-theory seems to me nearer the truth than Mill's impassable barriers, because it recognises infinite gradations and interminglings; but surely both err in holding that Natural Kinds are to be sought for, not made, by us. Let me not be misunderstood as saying that they depend on the arbitrary choice of the naturalist. He has not an arbitrary choice. His kind or group must be that collocation which admits of the most numerous and most important statements concerning the members. But he does not, I submit, look for "a few definite characters which point to the multitude of indefinite ones". He will, indeed, choose as his diagnosis a few definite characters which point to (are the invariable concomitants of) a number of others, but these not indefinite. And need such a commonplace be added, as that the diagnosis of a class is not necessarily its diataxis?

"The conjunctions of qualities," writes Mill, "constitute the varieties of Kinds." The conjunctions are not fixed by us. But (as in many cases easily adducible) Individuality often is, and so, I believe, is the Kind. Nature does not present us with Kinds, but with Singulars. When we advance beyond Singulars to many individuals or substances forming a "natural Kind," we have made an arbitrary and conventional combination. We formulated the Kind, we selected the archetype, we raised the barriers. Briefly summarised, Nature has only individuals and laws. We recognise intensive connecting bonds of likeness running through things; that is what we find, not demarcated classes. All the class-making, from beginning to end, is our own work, is invention and not discovery. "The General never exists, only the Particular." I am unable to see my way satisfactorily to any other conclusion, yet some doubt lingers with me whether this is the true solution, and, offering it with diffidence, I shall be glad if abler pens than mine will take up the subject. Prof. Jevons talked of Mill's unsatisfactory language, but I am not aware that he ever formulated his own views.

VI.—CRITICAL NOTICES.

Psychology. By JOHN DEWEY, Ph.D., Assistant Professor of Philosophy in Michigan University. New York: Harper & Brothers. Pp. 427.

This book is one of the welcome signs from America of a strong forward movement in psychology now in progress there. The large number of psychological and psychophysical contributions to MIND that have come from over the Atlantic in recent years; the announcement that an *American Journal of Psychology* is henceforth to be added to the list of scientific periodicals in which the abounding energy of the young Johns Hopkins University of Baltimore seeks a vent; the appearance of a work of the size and comprehensiveness of Prof. G. T. Ladd's *Physiological Psychology*, mentioned elsewhere in the present No. and claiming the detailed appreciation that will follow,—are other evidences, to which more might be added, of the same fact. It is significant, too, that the very object of Prof. Dewey's book is to help in getting "scientific psychology" set before the students of American colleges, instead of that "compound of logic, ethics and metaphysics, mingled with extracts from the history of philosophy"—as he calls it—which it has been usual in the past to serve up for them, in connexion with some tags of psychological theory from Reid and Hamilton. Some years ago in MIND (iv. 89-105) a very effective description was given of the kind of elementary philosophical instruction so widely diffused through the United States by the host of colleges, mostly denominational. If the present manual of psychology finds its way into general use among American students, it will not leave things as they were.

A manual of psychology, it is still expressly written as an introduction to the study of philosophy in general. Not only is Prof. Dewey of opinion that it is impossible to exclude from the science a reference to the philosophical principles it involves, but he has, as readers of this Review have been made well aware, very decided views on the quite special relation that subsists between psychology and philosophy. He finds it possible to reconcile an idealism of the thoroughgoing modern type, first developed in Germany, with an adoption of the spirit and aims of the English psychological school from Locke onwards. It has been interesting to hear such ungrudging allowance of philosophical import to the work of the English inquirers from one who speaks the language of a class of thinkers with whom it has been a common fashion to regard it with a certain disdain. Somewhat more certainly, however, than Mr. Sh. Hodgson, from his independent standing-ground, could (in MIND No. 44) impeach

the validity of the attempt to bring about an alliance between German transcendentalism and empirical psychology, may it be doubted whether those who make a first beginning of study under Prof. Dewey's guidance will be able to grasp the peculiar philosophical speech which he is apt to employ in the midst of his psychological exposition. To be told, for example, at p. 6 that "Psychology is the science of the reproduction of some universal content or existence, whether of knowledge or action, in the form of individual, unsharable consciousness," may prove a hard hearing, even when the student is comforted, at p. 157, with the assurance that he will "see more clearly what is meant" thereby after taking in such a statement as the following:—"The knowledge of the finite individual is the process by which the individual reproduces the universal mind, and hence makes real for himself the universe, which is eternally real for the complete, absolutely universal intelligence, since involved in its self-objectifying activity of knowledge". The author also has a way at times of resorting to a kind of kaleidoscopic play with antitheses, which tend to pass over into one another in a manner more dazzling than edifying. There is a notable instance at p. 153, where Apperception and Retention are given as the "two sides of the process of knowledge"—the one accounting for the world as it "comes to exist for us," the other for the self as it "comes to exist as real". The antithetic statements that follow in rapid series through half a page get mixed up in a way that leaves one with no very clear notion of what it is that Prof. Dewey thinks is done for the world by self or for self by the world, how in his view it all comes about, and what that world and self are that he so sets in face of one another. The philosophy involved does not seem to do much for the beginner in this case or in others like it.

It would, however, be giving a very false impression of the character of this text-book to dwell longer on the features yet mentioned. As a purely psychological treatise—implying philosophical principles and portending philosophical issues, but not necessarily to be used for enforcing particular philosophical conclusions—it has great and obvious merits. While Knowledge has the inevitable precedence and prominence (pp. 27-245), a distinct stand has evidently been made for something like a fairly balanced consideration of the two other phases of mind. Feeling, especially, within the hundred pages given to the topic, has received an adequate handling. Feeling and Will have, besides, their part in two chapters of general introduction, as again, to some extent, in the account of Sensation (pp. 27-80) with which "Knowledge" begins. Nothing, indeed, could be better than the whole general view that is given of the relation of the three phases to one another, except when the disposition to merge and dissolve, in dialectic strain, begins to assert itself for the behoof of Will as "the complete activity," "self," "man," or what not, wherein

the opposition of Knowledge and Feeling becomes reconciled. The misfortune of such reconciliation is that the "Will" so construed does nothing to remove the need of still treating Will as a distinguishable mental phase among the others: and the double sense is confusing.

The account taken of Sensation gives perhaps the simplest measure of the book's quality. The main results of recent inquiry about the Senses are well and clearly expounded, and they are set out in a connexion which makes them thoroughly serviceable for one psychological purpose at least. Prof. Dewey has a very distinct notion of the difference between the actual facts or events of mental life and the scientific abstractions by means of which it is sought to comprehend them. Accordingly he distinguishes with excellent effect, under the head of Knowledge, the three topics of "Elements," "Processes" and "Stages". The "Stages"—Perception, Memory, Imagination, Thinking, Intuition—are taken last, as representing, so far as is scientifically possible, what actually goes on in the way of cognition; the order here again being determined by the view that there is a certain abstractness in all the others till in "Intuition" the fullness of knowledge—"knowledge of an individual"—is reached. Between "Processes" and "Elements," the psychological problem of Knowledge is aptly conceived as that of the elaboration of sensations "on the one hand into the objects known, and on the other into the subject knowing" (p. 81), or (p. 84) their transformation into a "world of objects, relations and ideals" and into "the self which knows and idealises". Sensations are, thus, clearly of account for Knowledge as elements, to be worked up by the processes which Prof. Dewey finds to be—respectively for world and self—Apperception (with Association, Dissociation, Attention, as its "kinds") and Retention. But in the earlier introductory section (p. 25) it had been laid down that also the general problem of Psychology was none other than to understand how a raw "material" became worked up by certain "processes" into "results"—described as "the concrete forms of consciousness, the actual ideas, emotions and volitions". Now the raw material is in all cases alike of a sensuous character; at least, it is with none other than sensuous states that the exposition of Feeling and Will, as well as of Knowledge, is made to begin. But, whereas the general scheme of treatment, from elements through processes to results, is, as we have seen, effectively carried through in the case of Knowledge, there is no attempt to maintain it for the other phases of Mind; the whole exposition in their case resolving itself into a description (for Feeling, as already said, a very good one) of what, in Prof. Dewey's language, may be called either "stages" or "results". There is, of course, a good reason for this, though it does not appear to be anywhere explicitly stated. It is that "processes" certainly, and "elements" in the main, have once for all been

sufficiently disposed of under the first head of Knowledge. This, however, amounts to saying that the account of elements and processes is of general psychological import, and is best presented in one division apart of General Psychology, as in the scheme of treatment which Prof. Clark Murray in his *Handbook* (see *MIND* x. 611, xi. 25) has the credit of first giving currency to in English. Prof. Dewey could, with mere trifling changes of detail, have so set apart his chapter on Sensation, with that on the general principles of mental synthesis which he calls "Processes of Knowledge"; and the gain in expository clearness would, I think, have been undeniable.

There are many points of doctrine set forth in the book which, if space permitted, there would be pleasure as well as profit in examining at close quarters. Whether one agrees or not with the author, it is impossible not to recognise his freshness and independence of view and telling vigour of statement. In particular, his analysis of the "Processes of Knowledge," involving his account of Association, Attention and other topics now so much to the front, may be commended to the notice of psychological workers. One aspect of Knowledge, as it happens, is treated by him in the present No. of *MIND* at greater length than was possible in the text-book, and a ready opportunity is thus afforded of gauging his manner of thinking on the subject. While in close touch with all the later German and English work in psychology, he is here no simple repeater of other men's doctrine. With even more independence of gait, there is manifest the like intimacy with the best recent inquiry in the very interesting chapters on the upward "Stages" of knowledge. Nor at another point, it may also be remarked, does his exposition come all too short of what in present circumstances may fairly be expected—I mean the reference to physiological conditions. At first, indeed, it seems as if he were ready to go very far in appeal to these. He does not hesitate to lay it down (p. 8) that the Introspective Method fails even to classify the facts of consciousness, much more to explain them: explanation must be sought first of all from the Experimental Method (in physiological psychology), and next, more completely, from the Comparative Method in its various applications. Accordingly, he refers freely enough to neurological facts at the stage of sensation, and even includes some short account of psychophysical procedure. It is very well; but, if students are to profit by such reference, it would seem necessary, in a text-book, to give, once for all, however shortly, a clear and distinct view of the relation of nervous to mental process and a summary of the really important and relevant physiological data. Prof. Bain's example in this matter was worthy of closer imitation than it has received in any of the later manuals for students. It is easy of course, and in a way creditable, to protest against an infusion of physiological smatterings; it is also conceivable that a complete psychological theory, including even

a doctrine of sensation, might be worked out without physiological references. But, in point of fact, nobody thinks of working out any such theory; and, as everybody does import just as much physiological statement as is found necessary or possible or, it may be, convenient, the plain course is to do it with sufficient warning and explanation from the beginning. Prof. Dewey does not do enough in this way for the help of students. Learners, at least if left to themselves with his book, would, I imagine, find it hard enough to connect with his introductory view of Mind in general the doctrine of Sense to which they find themselves straightway conveyed; and I say this without ignoring the section soon inserted on "Relation of the Physical Factor to the Psychological". (In this, by the way, should not "Psychological Objection," at p. 41, be called Metaphysical rather?)

On the general question of psychological explanation, I close with the remark, that if it is to come only, as Prof. Dewey urges, by resort to the Physiological—or more properly (in the wider sense of the word) Psychophysical—and Comparative Methods, there would need to be a good deal more both of psychophysical and of comparative statement forthcoming than he has anywhere provided in his book. Nobody could put more impressively than he does the helplessness of both methods apart from the data yielded by Introspection; and he has himself given throughout the work the best proof that the Introspective Method is by no means so helpless to explain as, at the one place before noted, he too incautiously avers. It should be added that every chapter is followed by a most useful conspectus of the related psychological literature.

EDITOR.

Hume. By WILLIAM KNIGHT, LL.D., Professor of Moral Philosophy in the University of St. Andrews. ("Philosophical Classics for English Readers.") Edinburgh and London: William Blackwood & Sons, 1886. Pp. x., 239.

This little volume is, as we learn from the preface, the precursor to a more extensive work on Hume by the same author, and it would have appeared earlier but for the difficulty of reducing it to such a form that it might neither anticipate the larger book nor lose interest through undue reservation of material. It consists of an interesting narrative of Hume's life, and of a critical account of his philosophy, metaphysical and ethical, which is prefaced in each case by a historical review of his predecessors.

Some inaccuracies, mostly due to inadvertence, are noticeable in the biographical sketch. Of these, the most serious occurs p. 51, where we are told that "when we view Hume's work in the light of the subsequent evolution of European thought, we see that it is upon the *Treatise*, and not upon the *Inquiry*, that

his philosophical fame reposes". This is erroneous. The *Inquiry* has been far more widely known, and it consequently has had much more influence on the evolution of thought than the *Treatise*.

We may conveniently divide the strictly philosophical part of Prof. Knight's work under three heads—(1) the review of Hume's predecessors, (2) the exposition of Hume, (3) the criticism of Hume.

The historical retrospect seems to me for the most part superfluous, and not always accurate. It is inexact to represent matter and mind in their relative independence as the fundamental existences recognised by Descartes, together exhausting reality. The primary fact for Descartes was in the *ordo ad nos* the Ego, in the *ordo ad universum* God. The existence of matter depended from instant to instant on the divine causality, and was known to us merely as a corollary from the divine veracity. It is inexact also to say that Spinoza identified material and mental phenomena by "bringing in a *tertium quid* distinct from both, to which he affixes another name". It is both inexact and contradictory to call the relation of Hobbes and Gassendi one of mutual indebtedness, and at the same time to add that "Gassendi's works were published earlier, and his theories wrought out in independence and isolation".

I fail to see that this historical retrospect deserves insertion through any conspicuous merit of its own, and I am unable to discover what value it has for the general plan of the book. It would have been better if the account of Hobbes, Spinoza and Leibniz had been omitted, so as to make room for a fuller exposition of Locke. Prof Knight declares that "in explaining Locke we virtually explain Hume," and yet makes no reference to the cardinal doctrine of Locke's epistemology as contained in bk. iv. of the *Essay*. "In some of our ideas there are certain relations, habitudes and connexions, so visibly included in the nature of the ideas themselves, that we cannot conceive them separable from them by any power whatsoever. And in these only are we capable of certain and universal knowledge." Here indeed we have a "virtual explanation" of Hume. But there is no hint of this in Prof. Knight's book. The impression produced by it is that there is nothing in Locke from beginning to end but "empirical psychology".

Closely allied with this imperfect appreciation of Hume's relation to Locke is the imperfect appreciation which Prof. Knight displays of Hume's general attitude to philosophical questions, as distinguished from his treatment of special problems. No explicit account is given of Hume's doctrine of belief as distinguished from knowledge. Nothing is said of "that general maxim in the science of human nature," that wherever there is a close relation betwixt two ideas, "the mind is very apt to mistake them, and in all its discourses and reasonings to use the one for the other". No reference is made to the discussion of Space and Time (in pt. ii.

of the *Treatise*), which is invaluable as bringing into clear light the psychological atomism of Hume and his general method of procedure. The account of the distinction between impression and idea seems unsatisfactory. Prof. Knight's statement appears to imply that Hume, guided by a clumsy metaphor, regarded an impression as something stamped upon the mind by an unknown *x*. To me it seems clear that the antithesis, as Hume intended it, existed only within and for consciousness. Whenever he touches on the subject, he is evidently endeavouring to express a meaning for which he could not find words. He seems to be aware how unsatisfactory it is to name the distinction as one of liveliness merely. It appears to me that the distinction he was feeling after may be expressed as follows:—A mental content "gently introduced" into consciousness by a pre-existing mental content is an idea; a mental content which "makes its way" into our thought without such introduction, and which may therefore be said to "enter with force and violence," is an impression. I think that, if Hume were studied with the same tender care as Kant, this would be the general meaning elicited from his statements.

Where Prof. Knight confines himself purely to the exposition of Hume's treatment of special problems, he is in the main clear and correct. His defect is want of sympathy—he does not enable the reader to enter into Hume's position, so as to realise the historical necessity of it. In short, he fails to make Hume credible. The critical matter is, in point of quantity, in excess of the expository, but in point of quality inferior to it. Hume's doctrine of causality is said to be "a development (and a necessary development) of the doctrine which limits our knowledge to the realm of sense-experience". It would have been nearer the truth if Prof. Knight had said that it was a development of the very opposite doctrine—*viz.*, the fundamental doctrine of Locke, that universal and necessary knowledge is only to be found in discoverable connexions of ideas. According to Prof. Knight, "the curious thing is that he (Hume) never seems to have seen that this link of connexion, if obtained at all, must be obtained *a priori*". Now, on the contrary, this was just the point that Hume was most keenly aware of. His whole difficulty arose from the alleged *a priori* necessity of a relation not implied in the nature of the ideas related. It is true that Hume was far from seeing that the causal judgment was *a priori* in the Kantian sense—*viz.*, as being implied in every cognition of objective change. But this is not the sense in which Prof. Knight uses the phrase *a priori*. He allows that the "senses take note of phenomenal succession". "Some impressions reach us simultaneously, *i.e.*, we combine them in Time." Thus, in order to make the judgment of causality possible, "the intellect strikes through the phenomenal chain . . . and discerns the inner *vinculum*". "The judgment of causality flashes forth from the

mind *a priori*." Closely connected with this divergence from Kant as regards the evidence of the causal judgment is another, which concerns its nature. This, for Prof. Knight, does not consist in the assertion of an irreversible rule of sequence, but in the necessity that "every effect must have a cause," and that "power is lodged within the cause adequate to produce the effect". On the first head, Hume is entirely in agreement with his critic. He acknowledges freely that "every effect must have a cause," inasmuch as this is a relation included in the nature of the ideas related. Hume's own illustration is "that it no more follows from this maxim that all events have causes, than it follows because every husband has a wife, that therefore every man must be married". How would Prof. Knight prove that every event is, in the sense intended, an effect? How would he show that "within every atom, as its interior essence, this force or causal power resides"? His answer would seem to be that "this link of power," this "inner tie," is disclosed to the reason; we discover it by an "intuition of the reason". Now it was just this direct intuition for which Hume searched so diligently, and searched in vain. His conclusion was that, "if we examine this maxim, we shall find in it no mark of intuitive certainty; but, on the contrary, shall find that 'tis of a nature quite foreign to that species of conviction". If Prof. Knight has been more successful in this quest, he ought to have explained the nature of his intuition, and of its claims to validity. He ought to have shown that he has not mistaken an internal impression, psychologically generated, and afterwards projected by subreption, for an objective relation directly apprehended. Instead of this, he has contented himself with reiterating that the judgment is what he calls *a priori*, and seems not in the least aware that he is thereby handing back to Hume his own problem in place of a solution. I am far from saying that Hume has said the last word on this subject; but I utterly fail to see that Prof. Knight's criticism touches his position, or that it is even relevant to the issue raised.

On the question of personal identity, Prof. Knight attacks Hume exactly where Kantian criticism has reinforced his conclusion. The position maintained in this book is that the existence of a series of impressions and ideas implies the existence of a permanent identical substratum. The arguments used do not seem very conclusive. Thus (p. 178) Prof. Knight triumphantly asks, "if all that I am is this series of successive and detached impressions which I subsequently recall . . . how are they my impressions and my ideas?" The obvious answer is that, if by 'myself' I mean a series of ideas, in calling an idea 'mine' I must mean that it is part of this series. It is moreover difficult to see how a substrate can perform the work which Prof. Knight assigns it. If a succession of states of mind cannot of itself yield personal identity, it is far from clear how the case is improved by substituting a succession of changes in a permanent underlying entity.

Perhaps the apparently unsatisfactory nature of Prof. Knight's criticism is largely due to the fact that we are not sufficiently acquainted with his own standpoint. The passage which seems most significant as regards his peculiar views is also the most perplexing in the book. In discussing Nominalism (p. 181) he seems to affirm (1) that if all our knowledge were dissolved into a string of particulars, we might still attain to science; (2) that substance is a generic (!) element, distinct from and underlying particular phenomena; and (3) that eternal ideas lie at the root of individual things, and make their "entrance and exit" among the phenomena of sense, unaffected by them. Statement (1) must be due to inadvertence; (2) and (3) seem to express a form of Platonism which Plato himself in all probability outgrew, and which in the *Parmenides* he crushingly refuted.

Doubtless if Prof. Knight had been permitted by the conditions of his undertaking to give a more detailed, and consequently more advantageous, account of his own views, his criticism of Hume would have appeared more intelligible and more forcible. As it is, the present book does but raise expectant curiosity in regard to the larger work that is promised us.

G. F. STOUT.

Scottish Metaphysics Reconstructed. By the Writer of "Free Notes on Herbert Spencer's *First Principles*". Edinburgh and London: W. Blackwood & Sons, 1887. Pp. xiv., 244.

On first taking up this work as a reviewer, my impression was that a very few lines of wholesale condemnation would be the most effectual mode of dealing with it; but as I read on I came to the conclusion that the author had something important to say, if he had only known how to express it. It is not, however, *Scottish Metaphysics*, but a system much more akin to that of Plato and some of the modern Germans; and I cannot but regard both the title of the book and the form in which the author has chosen to give his philosophical views to the world as singularly ill-selected.

The form adopted¹ is a kind of running commentary on the *Lectures* of Sir William Hamilton, other authors being only occasionally introduced. It is the general opinion of Hamilton's disciples that these *Lectures* contain neither the latest nor the most accurate exposition of his philosophy; but the author does not, I think, refer even once to the *Discussions*, and makes very few references to the Notes to *Reid* (in none of which does he state on what page the quotation, or supposed quotation, is to be found). From the *Lectures*, however, the quotations are sufficiently abundant, but they are utterly wanting in any approach to accuracy. He tells us at the outset, indeed, that they are "summary-quotations," which apparently means that they are summaries of Hamilton's doctrine compiled by the author, and

consisting to a certain extent of Hamilton's own words; but placing these summaries within marks of quotation is calculated to mislead the reader, and make him suppose that he is dealing with Hamilton's words, when in point of fact the words are often widely distinct from those of Hamilton. Some of these summary-quotations I have failed to identify, though the author has indicated between what pages they are to be found. In other cases I have only identified a summary-quotation to find it a summary-misquotation. For instance, in describing Hamilton's distinction between knowledge and consciousness, the author informs us (within marks of quotation) that "in an act of knowledge my attention may be fixed either on the object-known or on the subject-knowing, and this act of knowledge in relation to the knowing-subject is called knowledge" (p. 52). Nor is this a mere slip of the pen, for the author has told us immediately before (also within marks of quotation) that according to Hamilton "pleasure and pain, desire and volition, are phenomena absolutely new and superadded to consciousness, and were never involved in, and could therefore never be evolved out of it" (p. 51; see also p. 41). Indeed, throughout the work the Hamiltonian distinction between knowledge and consciousness is not merely misunderstood, but inverted, and the inversion is usually described as a quotation. When the author has occasion to refer to the same passage for the second time, he refers not to the original work, but to his own previous note. Thus at p. 83 we find: "In note 17 Hamilton speaks of 'the whole divisible mental phenomena,' the reference being not to any writing of Hamilton's, but to the author's own note numbered 17. And his talent for misquotation is such that sometimes he actually misquotes his own note. Thus, after italicising a word which Hamilton uses in his summary-quotation at p. 24, he alters this very word in quoting his own note at p. 125. As a specimen of the absurdities attributed to Hamilton in these summary-quotations, I may refer to p. 115, where he is represented as saying: "A complex or collective notion is made up of the repetition of the notion of an army, &c." But the author is, in fact, as little accurate in his own language as in that which he ascribes to others. I find him speaking at p. 63 of the subject, predicate and *conclusion* as forming "a syllogistic whole" which by intuition we view in space. This is enough to make the hair of a logician stand on end. Other authors fare no better than Hamilton. Not only the page, but even the name of the book cited is not given, and "W. Thomson," I believe, at one time stands for the Archbishop of York and at another for Sir William Thomson, while "Stewart" is applied indifferently to Dugald and Balfour. In short, the best advice that I can give to the reader is to discard the quotations (or summary-quotations) altogether, and deal with the work as if it was an original treatise, not a criticism, and as if it emanated from an independent School of Philosophy

having no relation (save perhaps one of opposition) to the Scottish.

Treated as an independent philosophical treatise, its main feature is the attempt to attain by intuition to the knowledge of certain universals, some of which at least have been vainly sought for on the basis of discursive reason. These universals are Space, Time, Force, Intelligence, Goodness, Causation and, over all of these, Existence. Higher than all, in the opinion of the author, stands the personal God; but His existence and attributes are, if not wholly dependent on revelation, at least known by intuition only to a select few—the majority of mankind having been without this intuitive knowledge since the fall of Adam. It would have been better if the author had omitted this last portion of his theory and confined himself to what could or could not be established on philosophical grounds; though, if the narrative of Adam can be relied on as an expression of literal truth, it would seem that the eating of the forbidden fruit had enlarged rather than contracted the sphere of human cognition. The author draws a wider distinction between the various human faculties (if “faculties” is the proper expression in his system) than had been done by the Scottish School, and attributes to each faculty the perception or intuition of its appropriate universal. Thus Space falls under the faculty of Cognition, Time under that of Emotion, and Force under that of Conation. But then he contends for a kind of twofold Mind or Soul (I really do not know what expression to use, for the author would confine most of the ordinary terms to one branch of it), the second of which intuits a second triad in Intelligence, Goodness and Causation, while above both triads stands Existence as already indicated. There is even a third branch of the Soul which, though killed at the Fall, is capable of being recalled to life, and this part (so far as I understand the author) intuits the Deity in the form, I presume, of a third Triad. All these objects of intuition are Universals, and all are hyperphysical or supersensuous. We may have a sensuous perception of the modes of some of them (and he contends, in opposition to the majority of philosophers since Hume, that we have a sensuous perception of the modes of force), but not of the Universals themselves. The latter are not perceived, but intuited; but their universal and necessary laws are not to be found in the mind, but in the intuited Universals themselves. Necessity and Universality are thus objective, not subjective, but the objects in which they reside are not sensible but supersensible. Besides the objective physical sphere there is an objective hyperphysical sphere, with which the mind, or soul, or spirit, or self, or Ego (or whatever the author desires to call it, for he seems to draw distinctions between these terms which I do not comprehend) is in direct contact. Why our perceptions or intuitions of the one sphere should give rise to universal and necessary laws, while our perceptions or

intuitions of the other lead to nothing but empirical generalisations, does not clearly appear; but I presume the author would say that this difference arose from the difference of the spheres themselves. The laws of the one are perceived to be universal and necessary because they *are* universal and necessary; the laws of the other are perceived to be contingent because they *are* contingent. Mind, both in perception and in intuition, is a passive recipient of impressions, but in both instances they are true impressions.

Such a system, if properly developed and set out, together with its evidence, is certainly worth considering; but I have sufficient faith in the method of the old Scottish Metaphysics to believe that evidence is, after all, the main point. Reid and his followers denied that all evidence should be addressed to the senses, but they insisted that nothing should be laid down in philosophy that could not be supported by evidence. On what evidence, then, does the author rely? His answer is by no means as clear as could be wished. He has hardly grappled with the question of the relation between the Space and Time which we sensuously perceive and the Space and Time which we hyperphysically intuit—for to call the former modes of the latter seems to me to be darkening counsel by words without knowledge. But it is still worse with Force. All men probably believe that the Spaces and Times with which they have to deal are parts of one vast Space and one vast Time. But they do not believe that all the forces with which they have to deal are parts of one vast Force. And so far as I have studied physical science, I believe that in this respect it confirms the popular notion. Every particle of matter acts on every other particle, and even if there is but one force acting between each pair of particles, supposing the number of ultimate particles to be n , the number of ultimate forces will be $n(n-1)$. These forces may to a large extent act according to the same laws; but if the same course of teaching was adopted in every school in the kingdom, should we infer the existence of a Universal Schoolmaster, of whom all the individual Schoolmasters and Schoolmistresses were so many modes? I may add that the author cites in support of his cosmical universals, Space, Time and Force, not any well-known physicist, but Mr. Herbert Spencer's "co-existent resisting positions". Mr. Spencer probably intended this as a description of ponderable matter for which it may answer tolerably; but the author, who includes the luminiferous ether in his external world, is plainly bound to discard it. The ether undoubtedly transmits force, but the balance of evidence appears to indicate that it is wholly unresisting.

Space will not permit of a more extended examination of this theory. It is well worth stating and defending; but it seems to me to be even at the outset encumbered with difficulties, and most readers of the book will, I think, find others cropping up as they go on. I may perhaps particularise the author's reference

of Time to the Emotive Faculty, with the apparent consequence of referring Arithmetic and Algebra to the Feelings or Emotions.

W. H. S. MONCK.

Die philosophische Weltanschauung der Reformationszeit in ihren Beziehungen zur Gegenwart. Von MORIZ CARRIÈRE. Zweite vermehrte Auflage. 2 Theile. Leipzig: F. A. Brockhaus, 1887. Pp. xi., 419; vii., 319.

Even more now than when it was first published, forty years since, Prof. Carrière's classical work on the philosophical ideas of the Renaissance or "Reformation-time" appeals to the need that is felt for the kind of renewal which he has himself described, by a phrase adapted from Machiavelli, as a "bringing back of philosophy towards its origin". Along with the increasing specialisation of the present century there has been a rising desire, as Prof. Carrière shows, to attain again that largeness of outlook which has characterised the beginning of each intellectual epoch and which specialisation by itself tends to destroy. The philosophical ideas that within the properly modern period have been developed in different and sometimes conflicting directions, are all present, he contends, "in germinal totality," in the philosophy of the transitional period from the middle of the 15th to the middle of the 17th century. In Giordano Bruno, the supreme philosophical expression of that period, we may rediscover a view of the world as a whole which was lost in the dispersion of thought during the 17th and 18th centuries, but which could not have been fully understood till the various elements combined in its original unity had been worked out in their separateness. The systems of Spinoza, of Leibniz and of Hegel are all developments of that which is contained implicitly in Bruno. With the theory of things that Bruno attained by poetic vision, but left to others to develop dialectically, the mystical doctrine of Jacob Böhme—who represents the freer spirit of the German Reformation as Bruno sums up the Italian Renaissance on its philosophical side—is in essential agreement.

It is not necessary to go as far as Prof. Carrière in seeking at the opening of the history of modern philosophy an anticipation of a final doctrine, in order to recognise the justification of his point of view. Whether Bruno's writings in particular have had any positive influence or not, they have undoubtedly the character that is claimed for them of anticipating many theories of later science and philosophy. And Bruno is most important in relation to the present where he is most the representative of his age. Penetrated, as Prof. Carrière says, with the spirit of the classical writers and thinkers, he sought to form out of the fragments of ancient thought and the beginnings of modern science a system opposed at all points to Scholasticism or

philosophy within the limits of faith. He represents at once the "return to nature," that is, to the direct vision of things apart from all external authority, the rejection of the "*consuetudo credendi*"—"impedimentum maximum cognitionis," as he calls it—and the "return to antiquity," that is, to the study of what had already been achieved by free speculation and free artistic impulse. Now this intellectual and spiritual detachment from the Middle Age, in spite of the progress that has since been made in the practical sphere and in every field of science, has in some respects never been so complete as it was during the Renaissance. What was at first gained by the insight of the few has had to affirm itself in its application to details of life and thought and to diffuse itself by degrees downwards from the sphere of higher speculation. During this process the "*consuetudo credendi*" has reaffirmed itself in innumerable reactions, and has often made the systems even of great philosophers other than they would have been had they been determined simply by free speculative activity. If then we are to make a new effort at speculative construction, the philosophers of the Renaissance may be of more importance to us than some later and more celebrated thinkers. It is true that a more exact knowledge of ancient thought, the principal material of the men of the Renaissance, has since become possible; but this does not by any means destroy the interest of Renaissance speculation. Ideas derived from ancient philosophy were not merely reaffirmed, but gained at once in generality and concentration through the necessity of opposing them to the concentrated and generalised positions of an authoritative system of received doctrine. Thus it is that in the period of transition before the real beginning of modern philosophy with Descartes, we see better than at any later period what is the permanent character and tendency of the higher speculation of modern times. A new way of thinking as regards the whole is already clearly defined against the mediæval way of thinking; and the influence of the resisting intellectual medium in which the modern spirit is to move has not yet been felt in its full complexity.

Some readers will find in Prof. Carrière himself, so far as he aims at a new philosophical synthesis, a certain falling-off from the Italian philosopher for whom he expresses most admiration. Whether we call it a falling-off or an advance, it is certain that he is not so nearly at one with Bruno in his answers to the highest questions as he thinks. To this we shall have to return; but first an attempt must be made to give to English readers some idea of the distinctive features of Prof. Carrière's book as a history of the whole period of intellectual transition from the Middle Age. What is especially worthy of note is the wide range of his sympathies. Revivers of ancient philosophy, scientific investigators, magicians and alchemists, political thinkers, mystics and original philosophers are successively passed in

review, and everywhere we feel that the author has more than a mere external interest in his subjects, that he has himself seen things in turn from all the points of view that he is describing. Every chapter is drawn from original sources; and while there is no want of detailed information, a clear general idea is conveyed of the meaning of each movement and the purport of the doctrines of each individual thinker. The minor figures of the Renaissance and the Reformation are not neglected, and indications are given of the nature of the preparation for both movements in the later Middle Age; the German mystics of the 14th century in particular being dealt with at considerable length. The biographies and the general historical background make the book full of human interest.

The general introduction and conclusion being counted separately, the first four chapters deal with movements, the rest, except the sixth—which is a short introduction on “Religion and Philosophy in Italy,” placed at the beginning of the second volume—with individual thinkers. The movements dealt with are (1) the revival of Greek philosophy, (2) the scientific movement and the occupation with “magic,” (3) the effort after social and political reform and the speculative ideas in which it found expression, (4) German Mysticism and the Reformation. The writers who are considered to be of sufficient philosophical importance to demand treatment in separate chapters are Böhme (i. 310-419), Cardan (ii. 7-33), Telesio (34-45), Bruno (46-189), Vanini (190-214), and Campanella (215-296). The sixth chapter (ii. 1-6) is chiefly a study of Savonarola.

The chapter on Giordano Bruno is the longest in the book, and for the author Bruno is the centre of interest. These reasons might suffice to justify a critic in devoting special attention to that chapter. There is, however, the additional reason that the writer of the present notice will thus be discharging an old engagement. Prof. Carrière's general view of Bruno has been adopted, as was pointed out in the last number of *MIND*, by the author of the *English Life of Giordano Bruno*, recently published by Messrs. Trübner, for the appearance of which the continuation of a former article on Bruno in *MIND* (Vol. ix.) was reserved. Such a critical estimate of Bruno's philosophical position as was promised in the postscript to that article must necessarily be stated or implied in any detailed judgment on Prof. Carrière's chapter. The present review, in dealing with this chapter, will accordingly be at the same time a fulfilment of the promise then given. In making the chapter on Bruno the main subject of criticism, we shall not lose from sight Prof. Carrière's general purpose, which, as has been explained, is more than merely historical, being to treat the philosophers of the Renaissance and Bruno in particular in their relations to the present time. His treatment of Bruno is, besides, more open to criticism than his treatment of philosophers for whom his admiration is less; for this admiration causes him to

see in Bruno greater agreement with his own philosophico-religious ideas, and with those of the mystics whom he equally admires, than really exists.

As Prof. Carrière would have us return to Giordano Bruno in order to recover a totality of view that the moderns have lost, so he would have us return to Jacob Böhme and to the German mystics of the 14th century, Böhme's predecessors, in order to set reformed Christianity free from the dogmatic fetters imposed by Luther and Calvin. Now, of course, he cannot help recognising the differences between Bruno's poetical philosophy and Böhme's mystical theology; yet he tries to show that in spite of all differences the Italian philosopher and the German mystic are in agreement "in their highest ideas". Above all, there is in both alike a final "reconciliation of Theism and Pantheism". This reconciliation, he contends, is to be found in Christianity rightly understood. Already in the 14th century Eckhart, Suso and Tauler had caught sight of it as by inspiration. Marsilio Ficino and other Platonists of the early Italian Renaissance also had glimpses of it. Towards the clearer vision of this reconciliation the whole of modern philosophy has been tending. Opposite ideals of life, too, are approaching their reconciliation. Protestantism, favourable as it was in the end to exact learning notwithstanding the dogmatic formulas by which its growth was long checked, has brought about a new revival of Hellenism in Germany; and "this reawakened Hellenism is no other than what the Christian Jacob Böhme has depicted as the life of the new birth".

Of the manner in which "philosophical Mysticism" overcomes and reconciles the opposition of "Deism" and "ordinary Pantheism" two different accounts are given. Sometimes it is represented as combining in a single conception the ideas of the universe or of the Infinite, and of God as "self-conscious Spirit"; sometimes as a union of the ideas of the "transcendence" and the "immanence" of God. If, however, theism and pantheism are to be combined in a single conception, it is the last contrast that is all-important. God may be identified with self-conscious spirit to the entire exclusion of nature, which may be regarded as an illusion or a mere negation, and the doctrine may still remain pure pantheism. Theism, in any intelligible sense, means the idea of God, in Spinoza's phrase, as "princeps et legislator," as a personal being ruling the course of things and judging the actions of men. This is what seems to be meant by the doctrine of "transcendence". On the other hand, what is common to all forms of pantheism is the doctrine of "immanence". The ultimate explanation that deism and monotheistic theology seek outside and above the universe, pantheistic philosophy seeks within the universe. But for pantheism itself there remains the opposition of nature and mind, an opposition which is expressed with perfect clearness by Euripides (*Troades*, 886) in

the alternative—*Zeùs, εἴτ' ἀνάγκη φύσεος εἶτε νοῦς βροτῶν*, and therefore was not first revealed to consciousness by Christianity, as Prof. Carrière almost seems to hold. According as it takes one or the other side of this alternative, pantheistic philosophy may assume the form either of what Prof. Carrière calls "naturalistic pantheism" or of what may be called spiritualistic or intellectualistic pantheism; or it may seek to unite the two opposites in a single conception. Now this opposition of nature and mind is that on which Prof. Carrière principally dwells. When he speaks of "ordinary pantheism," it is naturalistic pantheism that he means; and in most cases when he speaks of the union of pantheism and theism he means the union of the ideas of nature and mind. As he does not clearly distinguish this opposition from that of immanence and transcendence, but rather seems to regard them as the same, identifying the idea of a transcendent and personal God with the idea of God as intellect or spirit, it is necessary to consider separately how far there is an effort at reconciliation of either pair of opposites on the part of Bruno and of the Christian mystics.

Now there is no doubt that Christian Mysticism really affirms a Deity who is at once immanent and transcendent, or in the universe and above the universe. The mystics identify the transcendent and personal God of theology with an internal divine principle manifested in nature and in the human mind. Thus they may be said to combine, if they do not reconcile, the theistic with the pantheistic position. The pantheistic element of their doctrine, however, tends to gain the mastery; hence accusations of heterodoxy against the mystics. Prof. Carrière himself sometimes seems to reject altogether the idea of an extra-mundane Deity, and in one place he ascribes this rejection to Böhme (i. 373-5); yet in other places (*e.g.*, ii. 305-6) he affirms it as the necessary complement of the pantheistic element of his doctrine. The consistent pantheism of Spinoza rejects the idea of a transcendent God altogether, but at the same time seeks to unite the conceptions of nature and mind by making thought and extension attributes of the one substance. Is Bruno to be classed with Spinoza, or, as Prof. Carrière contends, with the Christian mystics?

According to Prof. Carrière there is evidence of development in Bruno's writings. In the *De Umbris Idearum* he is a Platonic Idealist; afterwards, in the Italian works composed in England, he gives clear expression to naturalistic Pantheism; finally, in the Frankfort books, and especially in the *De Immenso*, the theistic element becomes distinct. If then in the *De Immenso* Bruno not merely leaves aside but positively rejects the doctrine of transcendence, this is conclusive against Prof. Carrière's contention for the theistic character of his doctrine.

That there are passages in the *De Immenso* obviously directed against the New Testament miracles and the doctrine of the

Incarnation, as well as the mysteries special to Catholicism, may not by itself be sufficient to prove that Bruno does not hold the doctrine of transcendence in common with the Christian mystics. Even a passage such as this is perhaps not decisive, though the very idea of miracle in the sense in which its possibility at least must be admitted by a theist, is rejected precisely in the spirit of Spinoza. Referring to comets, of which he gives a naturalistic explanation, Bruno says :—

“Some fly to a virtue above and beyond the natural, saying that a God who is above nature creates those appearances in heaven in order to signify something to us : as if those things are not better and the best signs of the divinity which come to pass in the ordinary course, among which those appearances also are not disorderly ; although their order may be concealed from us : but with prophets of this kind we do not speak, nor shall we be careful to answer them where it is not necessary to speak without sense and reason.” (*De Immenso*, iv. 9.)

In the last book of the *De Immenso*, however, there is still more unambiguous evidence of Bruno's position. For a great part of this book is a polemic against the doctrine of transcendence as it was held by Palingenius and other Platonists. There is no “supernal,” “intelligible,” “immaterial” light, Bruno tells the Platonists, such as they imagine outside the world, no light except that which shines within the mind and outside us in nature—

“Quæ importunissima pulsat
Pectora, quæque intus nobis splendet et extra”.

‘Nature’ is the name for a principle that is within things ; and the law by which all things accomplish their course (*lex qua peragunt proprium cuncta entia cursum*) is nothing but a logical abstraction (*abstractum quiddam logica ratione*). The whole is summed up thus :—

“God is infinite in the infinite, everywhere in all things, not above, not without, but most present, as entity is not outside and above beings, as nature is not outside natural things, as there is no goodness outside that which is good. But essence is distinguished from being only logically, and as reason from that of which it is the reason.”

Passages such as these throw light on the distinction, which in various forms is sufficiently frequent in Bruno, between God as absolute intellect and the manifestation of God in nature and in the human mind. When, for example, he distinguishes truth “before things,” “in things” and “after things,” he is applying in the sense of his own philosophy a traditional logical distinction recognised by him as no more than logical. By the distinction of God as absolute from the knowledge of God is expressed the imperfection of all actual conceptions of the divinity as compared with their ideal completion. Thus in the *Eroici Furori* the mind is represented as striving to identify itself with the absolute unity of the divine intellect, and as constantly baffled in this desire of unattainable knowledge. Nature or the infinite universe as distinguished from the divinity itself is variously called the “image,”

the "shadow," the "simulacrum" or the "attribute" of the primal intellect, which may manifest itself by other attributes, all of which must be infinite and eternal. The possible existence of unknown attributes (on which, for the rest, Bruno does not dwell) again necessitates the distinction of God as absolute from the manifestation or "reflexion" of God in things.

This may perhaps in one sense be called a doctrine of "transcendence," but it is not to be confounded with the theistic "transcendence," which implies a possible supernatural or miraculous. When Bruno speaks of a God who is known by supernatural light (as, for example, in *Della Causa*, ed. Wagner, i. 275) it is as an object of faith, with which philosophy is not concerned; and he sufficiently explains his attitude towards faith elsewhere. Although, however, there is no distinctively theistic element in Bruno, Prof. Carrière is right in insisting that his doctrine is not simply a naturalistic pantheism. Just as much as Spinoza, though in a different way, he seeks to overcome the dualism of nature and mind. And the conjecture that there is a development in his writings from a more naturalistic to a more spiritualistic doctrine is in itself plausible; for, in a passage of *Della Causa*, "Teofilo," the representative of Bruno, declares that he once inclined to the opinion of "Democritus and the Epicureans," who say that that which is not body is nothing, and who consequently will have it that matter alone is the substance of things and is also the divine nature, as was said by Avicenna in the *Fons Vitæ*; but that, having more maturely considered, he had found that it is necessary to recognise two kinds of substance—"matter" and "form" (Wagner, i. 251). Nevertheless there seems to be no evidence in Bruno's existing writings of such a development. Both sides of his doctrine are already clearly present in the *De Umbris Idearum*. The *Eroici Furori*, published in London, is chiefly expressive of its spiritualistic or Platonist side. And in the Frankfort books there are expressions of its naturalistic side identical with those of *Della Causa*.

The truth seems to be that before writing anything philosophical Bruno had arrived at the pantheistic doctrine of which an expression, as of something already familiar to him, is found in the dedication of his Italian comedy *Il Candelaio* and in some elegiacs at the end of the *De Umbris Idearum*. In these condensed expressions the stress is laid on the unity and permanence of substance and the eternity of vicissitude. Vicissitude, according to Bruno's philosophy, is possible only by the coincidence of contraries in the one Principle of things. The one Principle, the identity of unity and infinite number, becomes explicit in the productive energies and varied forms of nature. Nature produces the human mind, and the mind seeks to return, by intellectual concentration, to the unity of its principle. Thus the source of things and the end to which they aspire are one and the same.

A more correct interpretation of the doctrine of which this is

an outline has been arrived at by M. Renouvier in his *Classification systématique des Doctrines philosophiques* recently reviewed in MIND, when he describes Bruno as the most consistent of all pantheists in so far as he most explicitly makes the contrast of good and evil vanish with all other contrasts in the Absolute, than by Prof. Carrière when he sees in it theistic elements. That this consistent pantheism does not lead to a moral indifference such as M. Renouvier thinks ought to be its consequence, is evident, however, from the passages in which Bruno touches upon ethical questions. In the *Spaccio* he pronounces a strong condemnation on all that in modern times has been called "Machiavellianism," with obvious reference to some positions of Machiavelli himself (Wagner, ii. 217). Like Lucretius, he has in view the ethical applications of his philosophy; showing how it "takes away the dark veil of the mad opinion concerning Orcus and the greedy Charon," how it destroys the fables that are related of maleficent gods, "the dogmas of the sycophants"—

"Absona quæ ingenio, et sensu constantia nullo
Humanam turbant pacem seclique quietem,
Extinguunt mentis lucem neque moribu' prosunt".

His attacks on historical Christianity are above all on ethical grounds, and it is especially the practical accompaniments of the creed in his own day that move his indignation. His "*Bestia Trionfante*," in one of its significations, has precisely the meaning that modern criticism finds in Voltaire's "*Infâme*". Among the manifestations of the monster, the chiefs of the Catholic Reaction are not obscurely indicated.

The general nature of Bruno's treatment of theological mysteries in the *Spaccio* and of his "Euhemeristic" theory of mythology are very well brought out by Prof. Carrière, though he does not perhaps quite see that intellectually Bruno was specially hostile to the three monotheistic Semitic religions, for the reason that he found more easily in polytheism an exoteric expression of one side of his philosophy. In his attitude towards theology, to judge from one passage (ii. 99), Prof. Carrière supposes that there was a development—his later books being less contrary to the faith than his earlier—and that this development is established by Bruno's own words before the Inquisition at Venice. Prof. Carrière's interpretation, however, is not borne out by the passage in the documents that seems to be referred to (Berti, *Vita di Giordano Bruno*, p. 353). And, as a matter of fact, the Latin poems, while they contain fewer passages directed against theological doctrines than the *Spaccio* and the *Cabala*, contain more than *Della Causa* and *Dell' Infinito*, to which in their general subject-matter they closely correspond.

There are, no doubt, variations of mood in Bruno's attitude towards Christianity; but not such as indicate any real change of mind. When he speaks favourably of "the theologians" it is on the supposition that they are willing to tolerate philosophy

and even to recognise it as superior to theology. The religion of philosophy is for the few, the religion of faith for the many, who are unable to rise to philosophic virtue or have not sufficient natural goodness to act rightly without external law. By those who are only capable of faith and not of reason, the moral precepts of religion must be accepted as commands, and the theologians, having practice alone in view, may attach to them as sanctions doctrines which the philosophers from the point of view of free speculation may reject. But when false leaders arise who, seeking their own gain under the pretext of promoting religion, teach that the gods care only for the beliefs of men, when they extol ignorance and credulity as superior to knowledge and reason, and persecute those who hold other opinions, they are to be regarded as Hydras and Chimæras worse than those of old time; and to overcome them is the task of the heroes of the present world. "True fathers and shepherds of the people" have never prejudiced the liberty of philosophers.

This attitude of Bruno explains perfectly his partial submission to the Church before the Venetian tribunal. As Prof. Carrière says, he had no intention of recanting his philosophical ideas. "He recanted his ecclesiastical heresies, not his philosophy." And in return for this purely formal submission in matters of theology, he wished to be free to pursue his philosophical career, not merely as a student but as a writer, without molestation. His hope was that the fury of the Catholic reaction had abated, and that the new Pope, who was said to be favourable to learning, might accept the dedication of a book he had just composed. Some have found a difficulty in reconciling with this submission his subsequent refusal to recant certain propositions drawn from his writings. The difference, however, from Bruno's point of view, between a submission to the Church in theology, implying only that he had no intention of directly attacking the popular faith and was not an adherent of any new sect, and the unconditional recantation of propositions of his own philosophy, seems sufficiently obvious.

At the end of his exposition Prof. Carrière makes some interesting and instructive comparisons of Bruno with later philosophers. The analogy with Spinoza has always been the first to suggest itself. This analogy Prof. Carrière draws out in the manner already indicated. In Bruno he finds the original harmony of the doctrines of the unity of the world and the individuality of its parts that were developed in a one-sided manner by Spinoza and Leibniz; and he further contends that to the Spinozistic notion of substance Bruno added the conception of a divine "self-consciousness". This last contention, although not admissible in the precise form in which Prof. Carrière defends it, has yet an element of truth. Bruno, like Spinoza, calls the extended world an "attribute" of God; but with Bruno thought is not simply an attribute parallel with extension, but, as absolute, is

identified with God himself. The idea of personality, or of "self-consciousness" in the special sense, is no more present, however, in Bruno's doctrine than in Spinoza's. The doctrine of absolute thought as the unity from which all things proceed and to which they aspire according to the degree of their perfection, is the spiritualistic side of Bruno's pantheism. On the other side, he also identifies Nature, in one of its meanings, with God. "*Natura est Deus in rebus.*" Nature, again, is sometimes identified with matter, and from matter all forms of things are said to proceed; nature, as an "internal artist," producing the more perfect from the less perfect. By "matter" is not to be understood here the matter of the Epicureans, but matter as coinciding in the absolute with "form," or matter to each element of which is joined an element of spirit, so that the world is animated as a whole and in every part. It is to express this side of his doctrine and not the properly spiritualistic or intellectualistic side that he quotes the well-known lines of Virgil, ending—"Mens agitat molem et magno se corpore miscet". By the substitution of 'toto' for 'magno'—a variation which always occurs in his quotation of this line—the idea of the universal animation of the world, rather than of its direction by intelligence, is still more accentuated. The notion of intelligence as directing things finds its expression in the identification of Fate with Providence; but the perfection of the world which is said to be its final cause is not an ultimate state, but is simply "that in different parts of matter all forms shall have actual existence" (Wagner, i. 237). In the theory of particular things, of the life of animals, for example, this doctrine becomes what is now known as the doctrine of "internal teleology". All things seek their own preservation according to the knowledge they have of that which is conformable or opposed to their nature. The actions of ants and spiders, for example, are not directed from without by "unerring divine intelligences," but from within "by their own prudence and artifice". Haeckel's suggestion that some animals have senses which man has not is made by Bruno. In what relates to the souls of individual things, Prof. Carrière has noticed especially resemblances to Leibniz. As the terms 'mode' and 'attribute' are used incidentally by Bruno in the Spinozistic sense, so the terms '*monas*' and '*Monas monadum*' are used by him in the Leibnizian sense. He also puts forth the Leibnizian doctrine that no two individual things in the universe are absolutely alike. His doctrine of the perfection of all things in relation to the whole and from the point of view of intellect is Spinozistic rather than Leibnizian. The principle of "the coincidence of contraries," derived immediately from Nicholas of Cusa, by which he combines the opposite terms of his pantheism—the indivisible intellectual unity to which the mind aspires and the infinite multiplicity of a universally animated nature, has obvious resemblances to the dialectic of Hegel. As with Heraclitus and Hegel, it is made

the ground of an evolutionary theory. Individual things are represented as all in perpetual mutation, some approaching and some receding from the absolute unity; every soul or central monad occupying in turn all positions in "the wheel of metamorphosis". If those interpreters of Hegel are right who say that he teaches no real evolution in time but only a "dialectical" evolution, then Bruno's philosophical doctrine is more nearly than Hegel's an anticipation of the tendency of modern science.

In his attitude towards science, as Prof. Carrière says, Giordano Bruno is a guiding star for philosophers. His boldness in taking up the Copernican astronomy into his system, has been entirely justified by the succeeding centuries. That theory, in his day, was in the position of the theory of organic evolution before Darwin; and it ought to be remembered that he not only accepted the theory of Copernicus but made an extension of it which has also become a permanent scientific possession. Isolated suggestions of ideas that have since become important or celebrated have frequently been pointed out. The saying, for example, that the moderns are in reality older than the ancients, occurs in Bruno. The preference he expressed for the earlier philosophers of Greece in physics and metaphysics, while allowing the supremacy of Aristotle in "the humanistic sciences," has been shared by many later students. He in a manner anticipated "the Cartesian doubt," as is pointed out by Prof. Carrière, but did not make it the beginning of a systematic theory of knowledge. In all that relates to "theory of knowledge," indeed, it must be admitted that Bruno remains outside the specifically modern philosophic movement. The modern distinction of subject and object, dating from Descartes, could not of course be present to him. This makes it difficult to compare his philosophy with any system that starts from Cartesianism. His general doctrine, when compared with Spinoza's parallelism of the attributes of extension and thought, appears to be predominatingly idealistic; and this brings him nearer in some respects to later philosophy; but his idealism cannot be identified with any form of post-Cartesian idealism. At the same time it is not mere Platonism. Bruno's doctrine of matter in *Della Causa* is alone sufficient to distinguish him from the ordinary Platonists.

The ideas of his philosophy, like those of the pantheistic philosophy of the Renaissance in general, are of course largely drawn from Neo-Platonist sources. And his predecessors in the theory of matter—Avicbron and David of Dinant—started from mediæval Platonism. Bruno, however, does not simply pass on their theory, as has sometimes been assumed, but, while commending them for what they affirm as to the permanence of the material principle of things, finds their usual mode of expression inadequate, as not taking account of the formal principle which is eternally conjoined with matter, but only of accidental forms. With Bruno's doctrine of matter goes his substitution of an

evolution-theory for the emanation-theories of the Neo-Platonists. Here he was probably influenced by the Stoics, and by the earlier philosophers of Greece, whom he constantly cites. Indeed there was no form of speculative thought known to his age that was without influence on Bruno. This receptiveness is joined with an equally remarkable freedom. Of the submission of the spirit to external authority not a trace remains. His laudatory citations from all sources—philosophical and poetical, orthodox and heterodox, classical and biblical—are simply the expression of an intellectual or æsthetic admiration. In a writer of the 16th century this is at first sufficiently surprising; but it is characteristic of the spirit of the Renaissance. The reactionary return of the past is illustrated when, in the next age, we find Campanella, some of whose speculations have so much affinity with Bruno's, laboriously establishing his points by quotations from the Fathers. We moderns, Prof. Carrière says in commenting on this, have no longer any conception of the despotism of authority that then reigned (ii. 240). It ought to be added that for a brief interval and by a small number of minds this despotism had been thrown off, though long efforts were required before the more widely extended emancipation of modern times could be attained and made practically secure.

Whatever criticisms it may have been necessary to make on Prof. Carrière's general view of Bruno's doctrine, the great merits of his exposition are beyond dispute; and much of the spirit of Bruno has passed into the translations of verse from the Frankfort books and the *Eroici Furori*. The life has of course been re-written so as to include the results of all the documents published since 1846. For illustration of the sources and historical relations of Bruno's single ideas Bartholmæss ought still to be read; while Prof. Carrière's treatment of the whole philosophical history of the age supplies fuller information as to his intellectual surroundings and immediate antecedents. The only fault of the chapter on Bruno as a literary and philosophical study is the tendency that has already been remarked to tone down some of his distinctive ideas. That this is not entirely without effect on the details may be briefly shown by comparison of the last pages of Prof. Carrière's systematic exposition of the philosophy (ii. 160-2) with the passage in the dedication of *Dell' Infinito* (Wagner, ii. 12-14) of which it is for the most part a somewhat condensed translation.

Here is a portion of the passage as given by Prof. Carrière:—

"We fear not, therefore, that the multiplicity of things on this earth by the power of some black wandering demon, or by the anger of a thundering Jupiter, should be hurled out of this dome and shattered and dispersed beyond this vault of heaven or crumble to dust outside the starry mantle above us; for nature cannot perish in essence, and vanishes only in appearance, like the air in a burst bubble. *There is no succession of things without an eternal ground, a first and a last.* There are no limits and walls that should confine the infinite and bound its fulness."

The sentences to which these correspond in Bruno are as follows :—

"We fear not that that which is accumulated in this world, by the vehemence of some wandering spirit, or by the anger of some thundering Jupiter, should be dispersed out of this vault or dome of heaven, or shaken and scattered as in dust out of this starry mantle, and the nature of things not otherwise become void in substance than to the appearance of our eyes that air which was comprised within the concavity of a bubble is dissipated ; *for there is known to us a world in which for ever thing succeeds thing, neither is there any ultimate profound, from whence, as from the hand of the smith, they should irreparably vanish into nothingness.* There are no limits, terms, margins, walls, that should defraud us or withdraw from us the infiniteness of things."

The remainder of the passage concludes from the infinite power of God that the universe, or eternal image of God, must be infinite also, on the pantheistic ground that in God will and power, act and possibility, coincide. The last sentences are thus expounded by Prof. Carrière :—

"Not vain is the power of the understanding to add space to space, unity to unity, mass to mass, number to number ; thereby it breaks the chain of the finite and raises itself to the freedom of the infinite ; thereby it is loosed from the poverty and exults in the riches of life, and no Pluto can hold it imprisoned, no sphere bound it. Nature is an all-fertile mother, and God is not envious but is love itself."

In Bruno they are as follows :—

"So that not vain is this power of intellect which ever will and can add space to space, mass to mass, unity to unity, number to number, by that science that unbinds us from the chains of a most narrow and promotes us to the liberty of a most august empire ; that takes us from the believed poverty and narrowness to the innumerable riches of so great a space, of so worthy a field, of so many cultivated worlds ; and lets not circle of horizon counterfeited by the eye on earth and feigned by fantasy in the spacious ether imprison our spirit under the ward of a Pluto and the compassion of a Jove. We are exempt from the care of so rich a possessor and then so parsimonious, sordid and avaricious a giver, and from the nurture of a so fertile and all-pregnant and then so meanly and miserably parturient Nature."

Now, of course, as Prof. Carrière is not ostensibly translating from *Dell' Infinito*, but is using it as material for his own interpretation, he has a right to make alterations. The words omitted from the passages just quoted, and a sentence praising "Democritus and Epicurus," which is omitted from the intermediate passage, may seem to Prof. Carrière incongruous or not characteristic ; as, perhaps, according to his theistic interpretation of Bruno, they are. And he could find support for the words substituted. The reason why his variations in this particular case have been cited is to indicate exactly where he may seem to readers who do not approach the subject with his pre-suppositions to fall short of perfect appreciation of Bruno's way of thinking. Within the limits imposed by the desire to approximate the philosopher of Nola to the Christian mystics, neither his general interpretation nor his detailed exposition could be better.

THOMAS WHITTAKER.

VII.—NEW BOOKS.

[These Notes (by various hands) do not exclude Critical Notices later on.]

History of Modern Philosophy. By KUNO FISCHER. *Descartes and his School.* Translated from the Third and Revised German Edition by J. P. GORDY, Ph.D., Professor of Pedagogics in Ohio University. Edited by NOAH PORTER, D.D., LL.D. London: T. Fisher Unwin, 1887. Pp. xvi., 589.

This handsome volume deserves warm welcome, and will, it is hoped, be followed by more than the one other, extending over Spinoza, which is definitely promised. No greater service could be done to English and American students—the thought and deed are American—than to give them a trustworthy rendering of Kuno Fischer's brilliant exposition, so far as he has himself yet been able to carry it through. Whatever exception may be taken to it here and there, it stands apart as the most effective presentment yet made of the lives and work of the heroes of modern philosophy. A portion on Kant, long since translated by Mr. Mahaffy, is all of it that has yet appeared in English, and this was taken from the undeveloped first edition. (The *Bacon*, earlier translated, also from a first edition, by Mr. Oxenford, is an outlying work.) The translation now begun follows the latest edition, which for the author's vol. i. is the third, as has been noted in MIND on appearance of each of its two parts. It is these two parts of vol. i. of the original that have for the present been taken in hand; the (English) volume now issued covering, besides the whole first part (on Descartes, with General Introduction), as much of the second as (after the Cartesians proper, with Geulincx and Malebranche) leaves only Spinoza to be handled at approximately similar length. By the time that the volume on Spinoza is ready, it is to be hoped that the improved (second) edition of the author's vol. ii., on Leibniz, &c., may have seen the light, and that all who are concerned in the present enterprise of translation may feel encouraged to proceed with at least that division of the work, than which none is of greater value (even in first draft), and which is more wanted in English than perhaps any other. A trial of the present volume at various places turns out altogether to the credit of the translator. Though he is fortunate in having an author who writes extremely well, yet even Kuno Fischer's sentences, being German, can at times carry a heavy weight of sail. The translator has done everything that is necessary in the way of reefing; and the general effect of the whole is excellent. This result is the less surprising, because, as Dr. Noah Porter, in a few words of introduction, tells us, the translator, Prof. Gordy, already competent as a German scholar and familiar with philosophical literature, armed himself specially for the present work by devoting some months of critical study to the Cartesian doctrine. Though the translator has not remarked it, the present opportunity may be taken of correcting one error in Fischer's exposition. It is where Descartes is made to say (pp. 322, 323 of the translation, which with slight omission follows Fischer): "I have first asked myself what one really means by 'mathematics,' and *wherefore* arithmetic and geometry [*only*] are considered parts of it, and *not* astronomy, music, optics, mechanics and so many other sciences, *with just as good right*." Instead of the words here italicised, what Descartes really says in the *Regulæ* is "*quare non modo . . . sed etiam,*" conveying an obviously different meaning.

Elements of Physiological Psychology. A Treatise of the Activities and Nature of the Mind from the Physical and Experimental Point of View. By GEORGE T. LADD, Professor of Philosophy in Yale University. London: Longmans, Green & Co., 1887. Pp. xii., 696.

Critical Notice of this important work, published simultaneously in England and in America, will presently follow. Let it suffice for the present to state that, after a short Introduction (pp. 1-14), it is divided into three parts: i. The Nervous Mechanism (pp. 17-236); ii. Correlations of the Nervous Mechanism and the Mind (pp. 239-582); iii. The Nature of the Mind (pp. 585-613).

The Problem of Evil. An Introduction to the Practical Sciences. By DANIEL GREENLEAF THOMPSON, Author of *A System of Psychology*. London: Longmans, Green & Co., 1887. Pp. viii., 281.

Mr. Thompson here follows up his *System of Psychology*, reviewed in MIND, Vol. x. 115, with a treatise on Ethics, or, more exactly, on Ethics and Politics. Starting from a basis of hedonistic psychology, and adopting the utilitarian criterion of "the maximum happiness of the greatest number," he puts his general problem in the form, By what method or methods shall we seek to eliminate evil? The book is divided into six parts:—i. "The Nature of Evil"; ii. "The Elimination of Evil"; iii. "The great Theological Superstition"; iv. "The Institutional Fetish"; v. "The Socialistic Fallacy"; vi. "The Root of Moral Evil". The "two complementary precepts" which "must for ever govern all effective effort for the elimination of evil and consequent amelioration of mankind" are (1) "Aim at the minimum of extrinsic restraint and the maximum of liberty for the individual"; (2) "Aim at the most complete and universal development of the altruistic character". Socialistic proposals for the reform of society are rejected on account of their collision with the first of the two precepts. "The root of moral evil" is egoism; and this is to be attacked by altruistic action on the part of individuals. The author, while still remaining at the point of view of the older experimentalism unmodified by evolutionary or other later ideas, shows himself anxious to meet the objections of Green to utilitarian ethics; devoting a chapter (pt. ii., ch. 9, pp. 45-77) to an examination of the *Prolegomena*. As in the *System of Psychology* (though Green was not there referred to), a real if partial answer is at some points given to his objections to English philosophical method. In the former work, for example, the notion of "the self-distinguishing subject" as not identical with particular objects of consciousness was arrived at by psychological analysis. It was similarly shown how, consistently with hedonistic psychology, desires arise for objects instead of for pleasures directly. The analysis of desire is now repeated, and application of it is made against Green's contention for the priority of desire to pleasure. "The hedonists are wrong," it is concluded, "where they assert that the *object* of volition and action is always pleasure, but right in their claim that it is always the *end* of volition and action." Mr. Thompson protests against Green's view "that a Benthamite would repudiate as unintelligible the notion of an absolute value in the individual person," and would maintain instead the absolute value of every pleasure in itself. "Whatever a Benthamite ought to believe," he says, "I do not imagine one has been actually found who claimed that pleasure meant anything at all, save with reference to a person enjoying pleasure." "In the most egoistic form of hedonism, the personal Ego is of the supremest value," and, by sympathy, the hedonist may transfer this idea of value to all other persons. These arguments are in one way the more deserving of attention because Mr. Thompson remains so completely at the unmodified utilitarian standpoint. There is special interest

just now in his proof, from this standpoint, that individualism has not only been actually, but is logically, quite compatible with altruism. At the same time his content with the older ethical doctrine prevents him from defending his general philosophical position as effectively as he might otherwise have done. Whatever it may still be possible to say in favour of individualism, it is no longer necessary for an experientialist to found his ethics on an individualistic psychology. If the theory of society implied in Green's *Prolegomena* is not really bound up with his metaphysics, and if that theory is substantially true, an experientialist obviously puts himself at a disadvantage in contending without discrimination against Green's doctrine as a whole. Mr. Thompson partly sees this, and describes quite candidly the impression Green's doctrine makes on him. "With a little construing and amending," he says, "we should have no difficulty in reading out of it a sound, respectable utilitarianism." Then he proceeds to make objection to the points in which it seems to him to differ for the worse from the ethics of hedonism, *viz.*, in the "ætho-egoism" of its principle (since self-satisfaction is said to be always the end), and in the "*circulus in probando*" by which it identifies the moral good for the individual with social good. His objections are often acute; but he fails to see that there can be no real "construing and amending" of these doctrines in the sense of a different philosophy so long as the attempt is made from a basis of pure individualism.

The Principles of Morals. Part II. (Being the Body of the Work.) By THOMAS FOWLER, D.D., President of Corpus Christi College, Wykeham Professor of Logic in the University of Oxford, and Honorary Doctor of Laws in the University of Edinburgh. Oxford: Clarendon Press, 1887. Pp. xii., 370.

Prof. Fowler now publishes the promised continuation of the ethical treatise begun by him in conjunction with the late Prof. Wilson, of which the introductory part was noticed in *MIND*, xi. 436. "My own share in this portion of the book," he says, "has now become so preponderant, and, in the course of revision and completion, so many new questions have arisen which I never had the opportunity of discussing with Prof. Wilson, that, though I should myself have been content simply to reverse the order of the names, it has seemed to others better that this Part should appear in my name alone." A detailed account of Prof. Wilson's share in it is given, and the distribution of the authorship of Part i. is briefly described. Prof. Fowler has "freely made use, throughout this work, of the essay entitled *Progressive Morality*," published in 1884 and reviewed at length in *MIND*, x. 266, but has "not by any means incorporated it"—the two works being different in aim. Critical Notice of both parts of the present work will follow.

Metrelike; or, The Method of Measuring Probability and Utility. By F. Y. EDGEWORTH, M.A., F.S.S. London: The Temple Company, 1887. Pp. 66.

The author sends a short statement of the drift of this dissertation, which will be found printed in the next division of the present No. (p. 484).

Realistic Philosophy defended in a Philosophic Series. By JAMES M'COSH, D.D., &c., President of Princeton College. I. Expository; II. Historical and Critical. London and New York: Macmillan & Co., 1887. Pp. v., 252; v., 325.

The parts of Dr. M'Cosh's "Philosophic Series," "didactic" and "historical," have already been noticed in *MIND* as they appeared separately.

They are now published in two volumes, each furnished with a "General Introduction," and the first ("Expository") volume containing an additional (or not previously noticed) part on "Certitude, Providence and Prayer" (pp. 205-252). The introduction to vol. i. (pp. 1-26) deals with the question "What an American Philosophy should be"; the introduction to vol. ii. reviews historically, "Realism: its place in the various Philosophies". "The time has come," the author thinks, "for America to declare her independence in philosophy." American philosophy is to be "a Realism, opposed to Idealism on the one hand and Agnosticism on the other". The historical review of the philosophies is intended to show "that there is an avowed or latent Realism running through nearly all of them". Accordingly the "final philosophy" will be a "discriminate Realism" in which "all that is established in the previous philosophies will be embraced".

Naturae Veritas. By GEORGE M. MINCHIN, M.A., Professor of Applied Mathematics in the Royal Indian Engineering College, Cooper's Hill. London and New York: Macmillan & Co., 1887. Pp. 67.

This is a "scientific romance" of the type made familiar by *Micromégas*. The first part ("Stellar Visits") is in prose, the second ("The Revelation from Aldebaran") is poetical. Its idea, which is worked out with much ingenuity, is that in other stellar systems the distribution of the various energies of the universe may be quite different from their distribution in the solar system, and that beings with other organs than ours may know energy under other forms. The effect of this knowledge might well be that, instead of the principle of "the dissipation of energy," a principle of "the circulation of energy" should be seen to hold good; heat being, perhaps, to those who can observe more of the processes of nature, an eminently transformable kind of energy. "In none of the Stellar Systems which I visited," the narrator says, "could I find any confirmation of my belief in the principle of the Dissipation of Energy, either in the opinions of the various Beings with whom I conversed, or in the facts which they related to me as within the domain of their own knowledge. These facts would of themselves suffice to convince me that the transformation of all forms of Energy into Heat is not final; and that, although Men, with their limited field of experience and scanty modes of perception, are unable to trace the process, the principle which really holds throughout the Universe is that of the *Circulation*, or, as the Al Fardian expressed it, the *Resurrection*, of Energy; but the authoritative Revelation of the Aldebaran Spirit places the matter beyond doubt. What has gone before has shown me the danger of making a sweeping generalisation for this vast Universe from the scanty facts which we are able to gather in the Solar System. The conclusion is of too tremendous a magnitude to be at all justified by the existing state of our knowledge, or any that we are ever likely to attain." The poetical "Revelation from Aldebaran" first throws the inquirer into despair by showing him that if, as he supposes, the frame of the material universe is to be destroyed, his hope that mind will still endure is a vain imagination; then refutes his opinion, founded on the limited experience of an inhabitant of the solar system, that the universe is destined to become a lifeless mass of uniform temperature; and finally expounds to him the possibilities there are of indefinite progress of mind in the conscious beings of the universe, although the individual consciousness may disappear with the organism, and although, for the punishment of "the crooked will" that rejects "the higher way," there is "regression ever hovering in the rear".

The Theories of Anarchy and of Law. A Midnight Debate. By H. B. BREWSTER. London: Williams and Norgate, 1887. Pp. xii, 152.

Four friends, "Ralph," "Wilfrid," "Lothaire" and "Harold," having wearied of desultory philosophical talk, agree to explain to one another their "characteristic vein of thought"; seeing that, in the absence of real understanding of this, "perhaps each one of us, if the truth were known, looks upon the sayings of his neighbour somewhat as on brilliant sparks destined to light up the darkness one instant and then die out, whereas his own wisdom seems to him a steady, continuous light, because he knows where and how high the fire burns whence it emanates". The result of this agreement is a debate continued on two nights till dawn, in which the debaters strive, not to convert one another but to attain perfect clearness as to their ultimate views of things. "Ralph" is the evolutionary moralist, who asserts the supremacy of a universal law of progress to which individuals must conform in order to attain happiness. "Harold" is the "anarchist" or antinomian, who maintains that "there are rules and laws, but there is no such thing as the Rule or the Law," and who would reserve a place of honour for "the holy ghost of destruction". "Lothaire," personally inclined to a mystical acceptance of some form of religious faith, and disposed to hold that logically this would be defensible, does not insist on his own idea, but seeks rather to explain his friends more clearly to each other. "Wilfrid," the "atheist," contends that all philosophy—and science too—is "a deed of speech," and has simply a practical or poetical value, all ideas having equal theoretical justification; even the principle of the creative action of speech being, as soon as it is laid down as a separate principle, an "idol" like all other principles, and only defensible because for itself it claims to be nothing more than one idol along with others. The author treats all his characters with the utmost fairness. Although it is, no doubt, possible to detect a "vein of thought" of his own running through the dialogues, he does not display this by allowing any one of the debaters a victory over the rest. The "debate" is what it sets out to be, a disinterested exhibition of certain types of thought about life as proceeding from the predominance of particular moods. It has both literary charm and philosophical suggestiveness.

The Conception of the Infinite, and the Solution of the Mathematical Antinomies: A Study in Psychological Analysis. By GEORGE S. FULLERTON, A.M., B.D., Adjunct Professor of Philosophy in the University of Pennsylvania. Philadelphia: J. B. Lippincott & Co., 1887. Pp. 131.

The author here publishes in its complete form a discussion of "the conception of the infinite," the concluding chapter of which has already appeared as an article in *MIND* (Vol. xi. 186). His main contention is that we have "the notion of *unlimited possibility of quantity*,—a notion which, be it marked, is strictly qualitative"; and that this, and not the vain effort to imagine an infinite series as a whole, is the essential constituent of the mental state that has reference to infinity. What marks this state off from other qualitative conceptions is "its necessary reference to quantity, though not itself quantitative". By this exclusion of the notion of "a quantitative whole" from the conception of infinity, the difficulties as to the comparison of infinities are first cleared up. Not being quantitative wholes, infinities admit of no quantitative comparison among themselves; while they are alike in respect of the quality of allowing progression, in at least one direction, without end; for, this being supposed, a limit anywhere else does not prevent them from being infinities all the same. "In general, wherever the limit is removed in any one direction, whether in the case of lines, of surfaces or of solids, the object can no longer be regarded as a quantitative whole, and is not to be considered finite". In chapters iii. and iv. ("The Antinomies of Hamilton," "Kant, Mill and Clifford," pp. 34-

76) the position is taken up that in each case one of the opposed positions of Hamilton's (and of Kant's) antinomies with respect to the infinite of space and time, is really self-contradictory, and the other adequately conceivable; and suggestions of the true doctrine of the qualitative nature of the conception of the infinite are found in Kant, and still more in Mill and Clifford. The short penultimate chapter (v., pp. 77-89) on "The Conceivable and the Existent" is intended to make clearer what it is precisely that the author is trying to prove; which is, not the *existence* but the *conceivability* of the infinite. The infinity of space, for example, may be conceivable, and yet it does not follow either that space is infinite or that we can know it to be infinite. All that has been done is to get rid of a preliminary objection to entertaining any question as to its infinity. The last chapter ("The Conceivability of the Infinite"), as readers of MIND will remember, aims at showing by quotations from leading representatives of modern Nominalism, that "the operation of conceiving an infinite line" by abstracting the idea of a possible endless progression, is "in nature identical" with "the operation of forming a concept" as they describe it.

Some Problems of Philosophy. By ARCHIBALD ALEXANDER, Professor of Philosophy in Columbia College. New York: Charles Scribner's Sons, 1886. Pp. 170.

This little book consists of a series of essays in which the author states very suggestively some of the leading problems of philosophy, with the aim, first, of making the opposing positions clear, and then of working towards a doctrine that may be described as Critical Idealism. In the opening essay ("The Difficulties of Philosophy") he sets forth the "Dogmatic," the "Sceptical" and the "Critical" positions; his purpose here being to insist upon "the supreme necessity of thorough analysis before a metaphysical principle can be established." "In proportion as the difficulties of pure Metaphysics are recognised," he goes on, "are not cast aside by the sceptic nor overlooked by the dogmatist, the other branches of Philosophy will be progressive. Psychology should be especially benefited, for more than half the differences between different schools of Psychology are differences with respect to metaphysical doctrines which should not impede the tranquil progress of the inductive science of mind." An essay on "The Problem of Physiological Psychology" (vi.) is particularly good. The problem of the relations of Mind and Body is exactly appreciated, and the importance for psychology of the study of the physiological conditions of consciousness, without neglect of introspection, is well brought out. The short essay on "The Problem of the Will" (ix., pp. 77-9) is also very effective. For the author, the fundamental problem of philosophy is the nature of causation, and to this he finds himself constantly brought back in his discussion of other questions. The last essay (xviii., pp. 123-70) is an express discussion, historical and critical, of "The Doctrine of Cause and Effect". The true solution of the problem of causation, the author decides, can only be arrived at after a previous determination of the true theory of knowledge. We must not begin by dogmatic propositions about Nature. "We must explain the principles of knowledge first, for Nature is only what we know." The law of causality is then found to be "a law of knowledge, *i.e.*, a law of judgment—a form of Thought". "The necessity of that judgment depends on the existence of mind," of which nature, as we know it, is the product.

- (1) *Outlines of Psychology.* (2) *Outlines of Æsthetics.* (3) *Outlines of Logic and of Encyclopædia of Philosophy.* Dictated Portions of the Lectures of Hermann Lotze. Translated and Edited by GEORGE T. LADD, Professor of Philosophy in Yale College. Boston: Ginn & Co., 1886-7. Pp. xi., 157; xii., 113; viii., 184.

In the order given, Prof. Ladd has here completed his purpose of translating the whole series of Lotze's *Diçlate*, except those on the Philosophy of Nature and on German Philosophy since Kant; the earlier pieces of the translated series having before been mentioned in MIND. He is not only responsible for the whole translation of the present parts, but has, in fact, executed all with his own hand, except some sections of the *Logic*. This guarantees the philosophical intelligence with which an enterprise of difficulty as well as importance has been carried out to its close; while of the faithfulness of the rendering throughout, it may be said that it has been only too great, since Lotze's sentences, instead of being given exactly as they stand, could well have borne to be broken up at need, in the admirable fashion of the Oxford translation of the *System*. (We have, by the way, noted in the *Outlines of Metaphysics*, since it was mentioned in MIND, one awkward mistranslation at p. 5, l. 11, where "modes of experience" is given, by an obvious confusion, for *Verfahrungsweisen*.) All the claims that Prof. Ladd makes for each of the pieces in turn are to be heartily supported. The *Psychology*, in particular, is a real gift to students. It may be a surprise to some to find how nearly it gives, within short compass, the whole gist of bk. iii. in the large *Metaphysic* of the *System*. This bk. iii. is indeed somewhat of an anomaly where it stands, being by no means confined to the purely rational psychology to be there expected. Certainly the *Outlines of Psychology* have to be added to the *Outlines of Metaphysic* before the student has in abstract the whole of the doctrine that Lotze ended by treating as *metaphysical*. In the old *Metaphysik* of 1841 it was not Psychology that formed with Lotze the third and last division of his subject, but such a treatment of the "Truth of Knowledge" as in the *Outlines of Metaphysic* is still called Phenomenology, though he had meanwhile already come to adopt the traditional names of Ontology and Cosmology for his first and second divisions.

The Foundations of Ethics. By JOHN EDWARD MAUDE, M.A. Edited by WILLIAM JAMES, Professor of Philosophy in Harvard College. New York: Henry Holt & Co., 1887. Pp. iv., 220.

The present work, by an author who died prematurely (he was born in 1855 and died in 1885), deserves, by its intrinsic interest, all the attention that Prof. James claims for it in his short preface. It has, above all, as he points out, the merits of "clearness in making distinctions," and "logical consistency in the use of them when made". The brief sketch of the author's life that is prefixed will increase the regret which all readers must feel that he should only have had time to give this "one glimpse of his quality". The distinctions that Maude takes for the basis of his ethical doctrine are contained in his definitions of these four pairs of terms:—(1) Good and Bad, (2) Right and Wrong, (3) Moral and Immoral, (4) Virtue and Vice. Of these only the last, he holds, is properly ethical. "Good" is that which causes pleasure, and so is an objective character of things or actions, and not a subject of properly ethical judgment, which can refer only to the agent. "Right" means conformable to law; "moral" means conformable to good custom. The proper subject of ethics is virtue or vice, for which alone the agent is truly responsible. All virtue consists in "effort" or "action" put forth in opposition to desire or impulse, and all vice in the absence of effort. Since it is impossible for anyone but the agent himself to determine the intensity of the effort put forth, a science of pure ethics is impossible. There is, however, a science of "good," and this science is that to which Utilitarians have been accustomed to give the name of ethics. Pleasures differ only quantitatively; yet on account of the differences among the perceptions with which they are combined and

the necessity of estimating them by sense and not by strictly rational comparison, no hedonical calculus is possible. Rational calculation, however, is possible when, instead of pleasures, "utilities" or the means to pleasures are compared. "The effort of virtue is exerted in trying to make that idea the strongest as an idea of a cause of pleasure, which reason judges is the best." It is not merely in opposition to the desires of sense, by which the value of that which gives immediate pleasure is exaggerated, that virtuous effort is necessary. "Sympathy" also is a "natural impulse". It is a "good" but not a "virtuous" impulse, for no impulse as such is virtuous; all impulses, the higher as well as the lower, are in themselves "involuntary and unreasonable". Sympathy, therefore, may have to be resisted by virtuous effort as much as any other natural impulse. Virtue is in the end definable as effort made by "the personal will" against the "natural impulses," for the sake of the interest of "the self" as pointed out by reason; the "self" of which the interest is to be sought being not "the private or exclusive self," but "the highest self," the self so conceived "that nothing shall be foreign or strange to me, because all things are part of myself, and I am part of all".

Sensation et Mouvement. Études expérimentales de Psycho-mécanique. Par CH. FÉRÉ, Médecin de Bicêtre. Avec 44 graphiques dans le Texte. Paris: F. Alcan, 1887. Pp. 164.

M. Féré's monograph consists in the first place of a series of varied and exact experiments made both on normal and pathological subjects with a view to determining the relations of sensation or peripheral excitation, action, or the putting forth of muscular energy, and the distribution of blood in the system. The most general result of his researches is that "all peripheral excitations, whether they bear on the organs of general sensibility or on those of special sensibility, determine first a functional super-activity, translating itself, especially on the excited side, by an increase of general and special sensibility and a parallel increase of muscular force, which coincide with a dilatation of the peripheral vessels manifesting itself by an increase in the volume of the limbs" (p. 120). Motion, therefore, may be made the common measure of sensation, and all sensation may be estimated to a certain extent quantitatively by the dynamometer. When excitation is excessive or long-continued, exhaustion follows. Pleasure is the accompaniment of increasing energy of the organism or of a high state of its "potential energy," pain of diminishing energy or of a low state of potential energy. Happiness, individual or social, is summed up in the "accumulation of force". Subjects presenting "hereditary or acquired degenerescence," manifest in an exaggerated form the phenomena of "exhaustion". Among the various forms of "degenerescence," the author would include pessimism, and in some brief ethical applications of his results he arrives at the conclusion that "there is only one cardinal virtue: energy, manifesting itself by production under all its forms and by moderation of the needs of excitation and of the desires," while "vice is all that destroys". He has some remarks at the end, not in the usual strain of mental pathologists, on the relations of criminality, "degenerescence" and punishment. The volume is so full of interesting experimental results of which no more succinct summary than the author's is possible that injustice seems to be done by selection of single positions.

Esquisses de Philosophie critique. Par A. SPIR. Avec une Préface par A. PENJON, Professeur à la Faculté des Lettres de Douai. Paris: F. Alcan, 1887. Pp. xi, 189.

The author, whose collected German works were noticed in MIND xi.

297, has here composed in French a series of "Sketches" giving an outline of his philosophy. He is by birth a Russian, as the introducer of the present work tells us. The clearness and vigour of style by which M. Penjon thinks it likely to appeal to French readers, it has in common with the author's German works. His general philosophical doctrines have been briefly described in previous notices in *MIND*. The articles of the present volume, which, though not containing anything new in substance, is in form independent of the German works, are—i., ii., "Considerations on the Aim and Object of Philosophy," iii., "On Moral Liberty," iv., "Relations of the Soul and the Body," v., "Individual Life and Social Life," vi., "The Norm of Thought".

Les Sentiments Moraux au XVIe. Siècle. Par ALBERT DESJARDINS, Professeur à la Faculté de Droit de Paris. Paris : Pedone-Lauriel, 1887. Pp. xii., 486.

The author, well-known by his work on *The French Moralists of the 16th Century* (1870), here passes from the moral doctrines of the period as expounded by its writers to "the moral sentiments as they existed in those who lived and acted in the same country and at the same time". The object he has set before himself is so to group the facts as to present a picture of the moral sentiments of the *period*, and not merely of individuals; actions of extraordinary heroism or criminality, for example, being taken not simply in themselves as part of the facts from which collectively the age is to be judged, but with reference to their effect on the minds of contemporaries. M. Desjardins has succeeded perfectly in this aim. Under the heads of "Morals and Religion" (bk. i., pp. 1-106), "Moral Sentiments in general" (bk. ii., pp. 107-253), "Moral Sentiments proper to Public Life" (bk. iii., pp. 255-320), "Moral Sentiments proper to certain situations" (bk. iv., pp. 321-478) he gives—to a great extent in the very words of contemporary historians and men of affairs—just such a detailed and impartial account of the average modes of feeling and judging as is promised in the preface. The book, as may be inferred from this description, is not directed simply to the proof of theses of the author's own; but what seems above all to have awakened his interest in the period is the opportunity it gives for studying "the influence on morality of a decline in religious belief". The old religious authority, and along with it the old political authority, being weakened, the result was, he finds, the substitution, among the lettered class, of a morality derived from ancient moralists for the authoritative theological morality. At the same time, along with the new or revived conceptions of "state" and "country," the modern sentiment of "patriotism" arose, that should displace the sentiment of loyalty to a feudal chief. The immediate result of the prolonged religious and political anarchy of the period of civil wars in the latter part of the century, was a desire for the re-establishment of any religious and political authority that could control the forces that had been let loose; for the old religious faith and the feeling of reverence for the hierarchical order of mediæval society were not dead. The sentiment of patriotism or devotion to the state thus came to take the transitional form of devotion to the king, in whom the state was personified. Hence sprang the political absolutism of the 17th century, as from the desire for a restored religious authority sprang its "Catholic Renaissance".

Spiritualisme et Libéralisme. Par M. FERRAZ, Professeur Honoraire de la Faculté des Lettres de Lyon, Ancien Membre du Conseil Supérieur de l'Instruction publique. Paris : Perrin, 1887. Pp. iii., 469.

After having, in two former volumes, written the history of "positivist" and "traditionalist" philosophy in France in the 19th century, the author now goes on to the history of the spiritualist school, of which he is himself an adherent. His method is to deal separately with the chief writers of the school (living writers being excluded), in chapters that are chiefly biographical and expository, but also to some extent critical. The writers dealt with are Mme. de Staël, Laromiguière, Maine de Biran, Ampère, Royer-Collard, De Gérando, Victor Cousin (pp. 181-278), Théodore Jouffroy (pp. 279-361), Guizot, Charles de Rémusat, Adolphe Garnier, and Émile Saisset. In a concluding chapter ("Developments of Spiritualism," pp. 441-66), a brief account is given of some less known members of the school and of its influence. While conceding that it has neglected science, especially physiology, and has been too opportunist in politics and education, M. Ferraz contends that, in spite of all its defects, "spiritualistic philosophy is still to-day the only philosophy that can satisfy elevated minds and serve as the basis of free institutions". For the doctrine of inviolable personal rights is a corollary of the rationalism of the spiritualist school, but cannot be based on any form of sensationalism. Hence the title of the volume—"Spiritualism and Liberalism," which has reference also to the fact that the writers dealt with were all adherents of the constitutional doctrines of the early part of the century. In the actual treatment of his subject, the author gives most attention to psychology, and his account, in some of the earlier chapters, of the way in which new psychological doctrines came to be substituted for those of Condillac, has much scientific as well as literary interest.

Nouvelles Études familières de Psychologie et de Morale. Par FRANCISQUE BOUILLIER, Membre de l'Institut. Paris: Hachette, 1887. Pp. iii., 341.

These studies are a sequel to the author's volume noticed in MIND x. 306; differing principally, as he points out, by some incursions into the region of practical politics (ii. "Comment va le Monde, ou Étude sur la Lâcheté," iii. "Corruption de la Langue par la mauvaise Foi," v. "Patriotisme et Fêtes publiques, ou Enseignement historique populaire"). The psychological studies (i. "De la Justice historique," iv. "De l'Oubli," vi. "Amour de Soi, Amour des Autres") are pieces of exact analysis without parade of technical apparatus, and are good examples of the author's method. In the first, he argues that the historian ought not to be content with simply narrating facts, but has to pass moral judgment on them; the ideas of justice and injustice being applicable from the beginning of history. Judgments must of necessity be pronounced with reference to the average morality of the present day, but must be graduated according to age and place. The general rule is, "indulgence for the past, severity for the present". This rule receives some practical illustration in the political studies. The last study, which is partly ethical, has for its conclusion that "love of others" is not in reality opposed to "love of self," but is its continuation, while "egoism," in the bad sense, is its perversion. Love of others, being based on the feeling of personal identity, does not imply identity of substance of all beings, as is contended, for example, by philosophers so different as Schopenhauer and M. Secrétan, but is sufficiently explained by resemblance. For a certain degree of sympathy, resemblance in the mere fact of sentiency is enough. The most interesting study is probably the fourth, which contains in its last section an extremely good defence of the psychological hypothesis of "latent ideas" as the true explanation of memory and its degrees.

La Filosofia Monistica in Italia. Per E. MORSELLI, Direttore della *Rivista di Filosofia Scientifica*. Milano-Torino: Fratelli Dumolard, 1887. Pp. 42.

Prof. Morselli here sets forth his view of the true nature of philosophy, as distinguished from "metaphysics" on the one hand and the special sciences on the other. It is essentially, as the Positivists contend, a synthesis of the sciences; but not only has it the unity of method conceived by Positivism, but also the unity of doctrine of "evolutionism". Further, the evolutionism of scientific philosophy is monistic; for while it makes no metaphysical affirmation as to the nature of reality, it regards the series of phenomena as unbroken, and holds that all knowledge is continuous from the first empirical observation of facts to the highest generalisations attainable. This conception the author defends both against scientific specialists, who will not hear of philosophy at all, and against those who, in succession to Rosmini, Gioberti and Mamiani, oppose to Positivism a "metaphysical" doctrine which they claim is the "national philosophy of Italy". First he protests against the idea of maintaining special national philosophies; but if there is any Italian "national philosophy," this, he contends, is not the spiritualism of the first half of the 19th century. Far better than the philosophical ideas, neither original nor fruitful, of that period, Italy may claim the initiation of the modern experimental method by Galileo, and of the historical sciences by Vico, and the conception of a monistic theory of the universe by Giordano Bruno. To such thinkers as these, if it wishes to be truly national, Italian philosophy must return.

Briefe von und an Hegel. Herausgegeben von KARL HEGEL. In zwei Theilen. Erster Theil: Mit einem Porträt Hegel's. Zweiter Theil: Mit einem Facsimile Hegel's. (G. W. F. Hegel's *Werke*, Vollständige Ausgabe, 19. Bd.) Leipzig: Duncker & Humblot, 1887. Pp. xii., 430; 399.

This collection of letters from and to Hegel makes the nineteenth volume of the "Complete Edition" of the Works. The editor (Hegel's son) had long since proposed to republish the correspondence contained in vol. xvii., with additional letters of Hegel himself and a selection from the letters of his correspondents; but it has only recently become possible, through the necessity for the republication of the volumes of the Works that were out of print, to undertake this enlarged edition. The correspondence not previously published is larger in quantity than all the rest, and of no less interest; including early letters to Schelling, an important part of the correspondence with Niehammer, and letters from Hegel to Cousin. All the correspondence is arranged in chronological order and illustrated with sufficient biographical notes and introductions. The orthography of the original letters has been preserved as marking the period.

Geschichte der christlichen Ethik. Von Dr. W. GASS. Erster Band: Bis zur Reformation. Zweiten Bandes erste Abtheilung: Sechszehntes und siebzehntes Jahrhundert; Die vorherrschend kirchliche Ethik. Zweiten Bandes zweite Abtheilung: Achtzehntes und neunzehntes Jahrhundert; Die philosophische und die theologische Ethik. Berlin: G. Reimer, 1881, 1886, 1887. Pp. xviii., 457; xvi., 372; xvi., 386.

The first part of the second volume of Dr. Gass's history of Christian Ethics, mentioned in the last number of *MIND*, has been quickly followed by the second part, which completes the whole work. The first volume (the title of which is also given above) had already appeared in 1881. The author is known by histories of Protestant Dogmatics and of the Symbolism

of the Greek Church, and thus is well equipped for the history of theological ethics which occupies the greater portion of these volumes. The last published Part includes rather more than the title appears to indicate. Professing to treat only of the 18th and 19th centuries, it gives some account of the philosophical as distinguished from the theological ethics of the 17th century (the exclusively theological ethics of the 16th and 17th centuries being treated in the preceding Part). The objection may also be made that it is not concerned with exclusively Christian ethics; that since all the more important ethical philosophers of modern times, whatever their attitude towards Christian theology, are treated of at greater or less length, the volume might seem to require a different title. This would be the contention of Prof. Ziegler, for example, whose volume on Christian Ethics (noticed in MIND No. 45, p. 146) is referred to in terms of praise by Dr. Gass. There is much to be said for the plan of closing that part of the work with the rise of Humanism, in order to mark that from that period Christianity "ceases to be everything". Dr. Gass, however, has guarded against this objection. Modern philosophy, he contends, is as a whole correctly described as "Christian" because it has sprung up on Christian ground, and because in modern times there has been constant reciprocal action between theology and philosophy. His own view is that theological and philosophical ethics tend to a final harmony; his theological position being that of liberal Protestantism. Vol. i. begins with a preface section (pp. 1-48) consisting (after a brief introduction) of two chapters on "Ancient Ethics" (Socrates and Plato, Aristotle, the Stoics, Neo-Platonism) and "Biblical Ethics". It is then divided as follows:—Section i. "The Age before Constantine" (pp. 49-107); ii. "The 4th to the 8th Century" (pp. 108-241); iii. "First Period of the Middle Age: 8th to 11th Century" (pp. 242-68); iv. "Second Period of the Middle Age: 12th and 13th Centuries" (pp. 269-367); v. "Third Period of the Middle Age: 14th and 15th Centuries" (pp. 368-457). The last chapter of this section (pp. 437-57, "Voices out of Byzantine Theology") describes the ethical doctrine of some representatives of the Greek Church. The contents of the first part of vol. ii. have already been indicated in the last number. Both parts of this volume are divided according to subject rather than chronology. Section i. (pp. 1-96) of part ii., for example, is entitled "The Pre-Kantian Development," but brings down its account of English moralists (in chap. i.) from Hobbes to Prof. Sidgwick, Mr. Spencer and Mr. Stephen, and its account of French moralists (in chap. ii.) from Malebranche to Comte. The rest of the volume, from chap. iii. of this section to the end of the book, is concerned exclusively, or almost exclusively, with German writers, theological and philosophical. The author's general conclusion is that the distinctive ideas of ancient and Christian ethical systems have first been put in their true relations as a consequence of the development from the Reformation onwards. The character of the morality of the Gospel as distinguished from pagan morality consists in the demand that man should not only *act* well but *be* good. The last stage of the development of the Christian character is "holiness," in which "morality" and "piety" are united, so that "the old conflict of autonomy and heteronomy can no longer exist". Historically, ancient ethics, in its effort to express morality systematically, started from the conception of "virtue". The conception of "duty" and "law" was added afterwards. Scholasticism, proceeding, so far as it aimed at scientific form, from ancient ethics, developed its ethical doctrine as a theory of virtue and vice. Protestantism brings the conceptions of "virtue" and "duty" together and puts them in various relations, till at length they are seen to be co-ordinate. There can be no "collision of virtues". All casuistry arises on the ground of "duty". Conflicts of duties are to be

resolved in the last resort by an immediate appeal to conscience. Finally, morality, besides being considered as it is active in man and as it expresses itself outwardly so as to be brought within a scheme of classification of virtues or duties, must be considered in detail in its relation to nature and to social life; every department of life being viewed in relation to its appropriate duties and virtues, and regarded as destined to be a "dwelling-place of love," the supreme expression of Christianity.

Psychologie in Umrissen auf Grundlage der Erfahrung. Von Dr. HARALD HÖFFDING, Professor an der Universität in Kopenhagen. Unter Mitwirkung des Verfassers nach der zweiten dänischen Auflage übersetzt von F. BENDIXEN, Gymnasiallehrer. Leipzig: Fues (R. Reisland), 1887. Pp. vi., 463.

This work of a Danish psychologist appeared first some three or four years ago, and, being now somewhat extended in a second edition, by continued study on the author's part and by some experience of its academic use, is also laid before a wider public in a German translation. While following the now generally accepted lines for treatment of the subject, it has characteristics which give it a special interest for English readers. Critical Notice will follow.

Der Philosophische Criticismus u. seine Bedeutung für die positive Wissenschaft. Von Prof. A. RIEHL. Zweiter Band, zweiter Theil (Schluss), "Zur Wissenschaftstheorie u. Metaphysik". Leipzig: Engelmann, 1887. Pp. xi., 358.

Here is completed a very important philosophical work which hitherto has failed of notice in MIND. The first volume, on "History and Method of Philosophical Criticism," appeared as far back as 1876; followed by the first part of the second volume, on "The Sensuous and Logical Foundation of Knowledge," in 1879. Some time afterwards the importance of the work came to be known, but in view of the swiftly promised conclusions of the second volume and of the whole book notice was deferred. Only now, after an interval of eight years, has the author been able to surmount various hindrances and round off his theory to his own satisfaction. The general conception of Philosophy with which, in the present crowning section of his work, he passes to the consideration of the problems first of general Theory of Science and then of Metaphysic, got earlier expression in a lecture, "On Scientific and Non-scientific Philosophy," when he assumed some years ago his present academic post in Freiburg. As detailed review will now, it is hoped, shortly follow, let it suffice for the present to have merely chronicled these few facts. The work has immediate relation to the questions of general import that are at present uppermost in men's minds. While informed with wide historical consideration, it is essentially of the time, timely.

Geschichte der Philosophie im Umriss. Ein Leitfadens zur Uebersicht von Dr. ALBERT SCHWEGLER. Vierzehnte Auflage, durchgesehen u. ergänzt von Dr. R. KOEBER. Stuttgart: C. Conradi, 1887. Pp. 372.

It should interest those who have known Schwegler's effective sketch of the History of Philosophy, either in the original or in Dr. Hutchison Stirling's not less effective translation (with supplement), to note how the book has gone on being used in the land of its birth till now, in its 40th year, it has reached its 14th edition. This latest reprint, besides having inwrought with it short bibliographical additions, contains a large development of the three-page section on "Christianity and Scholasticism" where Schwegler came most notably short; the section now extending to more

than twenty pages such as his, and giving a view of the whole middle period in something like keeping with other parts of the work. There is also added, at the close, a considerable account (pp. 342-72) first of Schopenhauer and then of v. Hartmann. The editor writes as if in close sympathy with the latter thinker, and finds accordingly none but these two to be added to Schwegler's tale, which broke off with Hegel. It seems regrettable that the additions throughout, while worthy of all commendation, have not been in some typographical way marked off from Schwegler's text.

Grundriss der Geschichte der Philosophie. Ein Leitfadenzum Studium der Geschichte der Philosophie u. zur Rekapitulation. Von Prof. Dr. L. RABUS. Erlangen: A. Deichert, 1887. Pp. xvi., 224.

The merits of this compendious sketch of the history of philosophy, which are not small, follow from the circumstances of its origin. After having had his interest in the subject excited from early youth, the author has for twenty years back been regularly in the way of lecturing upon it, first at the Lyceum of Speier, and then at the University of Erlangen. The present work consists of the paragraphs which he makes the basis of his oral exposition, and they are now published as first part of an introductory text-book to philosophy, to be followed by another volume on logic and philosophical encyclopædia. The paragraphs have gradually assumed their present form in the light of experience and reflection, and are supplemented by careful bibliographical references. As the work has been in no way hurried, it is of genuine quality—by no means such as often is offered to students for purposes of "recapitulation". About one-half of the volume is given to the German movement from Kant onwards. References to English philosophy, early or late, though not extensive, are good as far as they go.

Vorfragen der Ethik. Von Dr. CHRISTOPH SIGWART. Herrn Dr. Eduard Zeller, Professor an der Universität und geheimem Regierungsrathe in Berlin als Festschrift zur Feier seines fünfzigjährigen Doctorjubiläums am 25 August 1886 überreicht von der philosophischen Facultät der Universität Tübingen. Freiburg i. B.: J. C. B. Mohr (Paul Siebeck), 1886. Pp. 48.

These "general considerations on the problem that a scientific ethics can and must set itself" are well adapted to their purpose of promoting clearness of thought on ethical questions. Prof. Sigwart aims at reinstating the idea of "end" or "highest good" in the supreme position from which it was deposed by Kant. The idea of "universal law," he makes dependent on a highest good that is willed by men in common as members of a society. In the brief space of his essay he has something to say on all the chief points of ethical definition.

Philosophische Aufsätze, II. Zur Würdigung Comte's und des Positivismus. Von RUDOLPH EUCKEN (Jena). Pp. 55-82.

This essay on Positivism follows the author's essay on Neo-Scholasticism, noticed in MIND xi. 445. His estimate of Comte, as far as it goes, is in essential agreement with Prof. Caird's (see MIND x. 462), and from a somewhat similar point of view.

Wer schrieb das "Novum Organon" von Francis Bacon? Eine kritische Studie von EUGEN REICHEL. Stuttgart: A. Bonz, 1886. Pp. 32.

An article included by the author in a volume of studies entitled

Shakespeare-Litteratur here appears in a separate form. Its contention is that the *Novum Organum* is the work of an unknown writer "edited" and interpolated by Bacon; this writer being a free-thinker and opponent of scholasticism, and a seeker of knowledge for the sake of "light" not "fruit," while Bacon himself was a scholastic theologian and a utilitarian in matters of science.

Die Naturwissenschaftlichen Grundlagen der Poesie. Prolegomena einer realistischen Ästhetik. Von WILHELM BÖLSCHKE. Leipzig: C. Reissner, 1887. Pp. iv., 93.

"The natural sciences form the basis of our whole modern thinking. We cease daily more to regard the world and men from metaphysical points of view." Science, then, must transform poetry; and for it to do this, the construction of a sound realistic aesthetics is necessary. On pain of elimination in the struggle for existence, poets will have to adapt themselves to "the new results of research". They usually commit the error of trying to get at the results of science by studying philosophical systems; or, if they study science directly, like the "naturalist" school, then, since scientific psychology and physiology are chiefly founded on study of the organism in a state of disease (p. 11), they are disposed to give too much attention to pathological phenomena. It is better to commit this error than the first, because the study of diseased organisms known to be diseased is less dangerous than the glamour of "sentimentality" and "metaphysics" which the older poets and romancers diffused over life. They must be taught, however, to avoid this error also; and in order to put them in a right position for understanding the results of science on the most important questions relating to normal phenomena, the author has written chapters that are to give the outcome of scientific research, entirely unmingled with metaphysics, on "Free-will" (c. ii., pp. 15-36), "Immortality" (c. iii., pp. 37-47), and "Love" (c. iv., pp. 48-67). Two more chapters treat of "The Realistic Ideal" (c. v., pp. 68-74) and "Darwin in Poetry" (c. vi., pp. 75-87). Then the volume is brought to a close with some considerations on the future of realistic art in Germany (c. vii., pp. 88-93). "The premisses of the poetic experiment: that, in a word, is everything." "The realistic poet shall paint life as it is." He must display the naturalistic ideal—"the tendency to health and happiness"—like a teacher drawing the attention of his class to one aspect of an experiment, yet without falsifying it (pp. 73-4). And this ideal had better be represented too weakly "than that one should profane it in the manner of the old metaphysical ideal by artistic re-colouring" (p. 74). From the moment that science has proved that ghosts do not exist, it is no longer permitted to poets, if they do not wish to be ridiculous, to introduce a ghost making any kind of revelation (p. 4); but the realistic poet may find it useful to study experiments on hypnotism (p. 22).

Zur Moral der literarischen Kritik. Eine moralphilosophische Streitschrift. Von WILHELM WUNDT. Leipzig: W. Engelmann, 1887. Pp. 77.

In this *Streitschrift* Prof. Wundt replies at considerable length to a criticism on his *Ethik* by H. Sommer, published in the March number of the *Preussische Jahrbücher*. He contends that he has been misrepresented; protesting especially against its being supposed that in consequence of his "evolutionism" he underrates the ethical value of the individual life. The controversy is made the occasion of some remarks on the morality of literary criticism, and its present condition in Germany.

1st *E. Haeckel Materialist?* Von Dr. R. KOEBER. Berlin : C. Duncker (C. Heymons), 1887. Pp. 36.

The purpose of this pamphlet is to show, against a polemic of Dr. O. Zacharias, that Haeckel's view of nature is in reality not materialism, but a "vitalistic" monism ; the materialistic utterances in his writings being inconsistent with what can be clearly made out to be his central metaphysical idea, which is in harmony with the "Nature-philosophy" of Schelling and the teleology of Von Hartmann.

RECEIVED also :—

- A Dictionary of Philosophy in the Words of Philosophers*, edited with Introduction by J. R. Thomson, Lond., R. D. Dickinson, pp. xlviii., 479.
 L. Carroll, *The Game of Logic*, Lond., Macmillan, pp. 96.
 W. Renton, *The Analytic Theory of Logic*, Edinburgh, J. Thin, pp. 16.
 W. B. M'Taggart, *Absolute Relativism*, Lond., W. Stewart, pp. viii., 133.
 R. Bithell, *Agnostic Problems*, Lond., Williams & Norgate, pp. viii., 152.
 W. D. Lightall, *Sketch of a New Utilitarianism*, Montreal, pp. 40.
 C. Richet, *Essai de Psychologie générale*, Paris, F. Alcan, pp. xiv., 193.
 E. de Roberty, *L'ancienne et la nouvelle Philosophie*, F. Alcan, pp. vi., 364.
 G. L. Fonsegrive, *Essai sur le libre Arbitre*, F. Alcan, pp. 592.
 E. Ferrière, *La Matière et l'Energie*, F. Alcan, pp. 580.
 J. Delboeuf, *La Matière brute et la Matière vivante*, F. Alcan, pp. 184.
 A. Martin, *L'Education du Caractère*, Paris, Hachette, pp. 377.
 J. B. Meyer, *Probleme zur Lebensweisheit*, 2te Aufl., Berlin, Allg. Verein f. deutsche Literatur, pp. vi., 369.
 S. Stricker, *Ueber die wahren Ursachen*, Wien, A. Holder, pp. 60.
 R. v. Schubert-Soldern, *Reproduction, Gefühl u. Wille*, Leipzig, Fues (R. Reisland), pp. xv., 135.
 F. J. Mach, *Die Willensfreiheit des Menschen*, Paderborn u. Münster, F. Schöningh, pp. ix., 274.
 W. Schmidt, *Die göttliche Vorsehung u. das Selbstleben der Welt*, Berlin, Weigandt u. Grieben, pp. 230.
 P. Lanzky, *Abendröte, Psychologische Betrachtungen*, Berlin, C. Duncker (C. Heymons), pp. 134.
 A. Wernicke, *Die Grundlage der Euklidischen Geometrie des Maasses*, Braunschweig, J. H. Meyer, pp. 58.
 H. Neiglick, *Zur Psychophysik des Lichtsinnes*, Leipzig, W. Engelmann, pp. 84.
 J. Bergmann, *Ueber das Schöne*, Berlin, E. S. Mittler, pp. 201.

NOTICE will follow.

VIII.—NOTES.

THE QUARTERLY REVIEW ON HOBBS.

THE following "Letter to the Editor" appeared in *The Athenæum* of June 4th. It may have some interest for the narrower circle of philosophical readers, even apart from the light it throws upon the current ethics of anonymous writing. The first sentence has reference to some previous letters that had appeared about other articles in the same number of the *Quarterly*.

University College, May 26, 1887.

If your readers have not yet had enough of the April *Quarterly*, there is something for them to hear about still another article in it. Circumstances have till now prevented me from seeing the article 'Hobbes of Malmesbury,' occasion or pretext for which is found in a little volume contributed by me to Blackwood's 'Philosophical Classics for English Readers'. The Reviewer passes an extremely contemptuous judgment on every part of Hobbes's philosophical performance, though he is rather apt, on taking up the different parts in turn, to make light of each by contrast with some other which he forgets that he has already denounced. It is not a well-informed judgment, and there is a want of shading and discrimination in the invective that reminds one of nothing so much as the handiwork of some of the poorer theological assailants of the philosopher in his own time. However, it is not to the Reviewer's judgment, in either matter or manner, that I desire to draw a little attention, but to the astonishing inconsequence of statement and inadvertence to plain fact which he has been suffered to exhibit through thirty pages of an authoritative literary organ.

The Reviewer has neglected no device for the overawing of his readers. Knowing, or having read on purpose, something even of Hobbes's physical lucubrations, he can give you an array of citations in foot-notes to other works than *Leviathan*. He not only can mention those MSS. in the British Museum that are referred to in the volume before him, but can himself quote from another with which Sir Matthew Hale "came to the rescue" against Hobbes—which was a remarkable thing to do with an unpublished MS.; forgetting, however, elsewhere (p. 423, ll. 6-8) to put quotation-marks about the one smart saying in his article, taken almost *verbatim* from the worthy Chief Justice. In particular, he is so much at home with the MSS. at Hardwick Hall as to be able to announce that these documents, through being "frequently exploited," "have been left very much in the condition of a sucked orange"—nay, "to avouch from a personal inspection that, since Aubrey's narrative, not a shred of fact can be extracted from them of the slightest interest to the public". After a magisterial declaration like this, set in the forefront of the article, what is left for the common reader but humbly to accept all that follows upon it?

Now it would be going too far to say that there is a misstatement in every one of the Reviewer's narrative sentences throughout the article, but it is probably under the mark to say that there are two misstatements for every three sentences. That is a serious charge to bring against the *Quarterly*, which has so often stood up (as again, elsewhere, in this very number) for precision of historical statement. I cannot, of course, prove it in detail here, but I make the charge, in its general form, on my personal responsibility, and I proceed, with your leave, to give some specimens of the Reviewer's work taken at random, after first convicting him upon one

point of quite cardinal importance—the fairest that could be put forward with such a master as he is of the Hardwick MSS.

The point upon which any true understanding of the course of Hobbes's philosophical thought turns is the fact that the two small works published separately in 1650 as *Human Nature* and *De Corpore Politico* were composed not later than the spring of 1640, as 'parts of one single 'little treatise in English,' entitled *Elements of Law, Natural and Politic*—composed, that is, some time before the first-written of his systematic works, the Latin *De Cive*. The point is cardinal, as I have more than once shown, because he is thereby proved to have elaborated his characteristic psychological doctrine and drawn out the main lines of his political theory before he had made any progress with his ambitious scheme of general philosophy based on mechanical principles. We see him to have been a man whose native bent was to the study, above all, of man and society. It is also, as regards the political theory, of first importance to find him committed to most of his extreme positions before the outbreak of the Civil War. Now the fact, though it might have been otherwise inferred (as I afterwards saw), was first made out by me at Hardwick Hall on examination of the MSS. there preserved—MSS. which at the time (1869) showed no trace of having been before attended to by anybody, though they have since been examined over again to excellent effect by Dr. F. Tönnies.¹ See, then, the understanding and the carefulness of the *Quarterly Reviewer*:—

P. 415: "His *De Cive* was published in 1642. A few years later this work, cut into two halves, reappeared under the guise of *Human Nature* and *De Corpore Politico*, or the *Elements of Law, Moral and Politic*—an adaptation of the title applied to his first treatise on the same subject."

The ludicrous blunder of taking the *Human Nature* and *De Corpore Politico* to be halves of the *De Cive* is here not unaccompanied by some sort of notion that something had been written before 1642 under a title of *Elements*. Accordingly, afterwards (p. 418), he speaks of "a small tract intended for private circulation" in 1640, though he would hardly have called it "a small tract" had he either seen its size among the Harleian

¹ The outcome of Dr. Tönnies's labour ought to have been better known by this time. Mr. James Thornton, of High Street, Oxford, who had issued a handsome reprint of *Leviathan* in 1881, agreed with Dr. Tönnies in 1884 to publish a carefully collated edition of the *Elements*, with some *inedita* appended; also a reprint of *Behemoth*, with text corrected according to what appears to be the original MS. of the work in the library of St. John's College, Oxford. The two volumes were announced to appear in the winter of 1884, and were, in point of fact, almost completely printed off early in 1885. After an unexplained delay of eighteen months on the part of the publisher, the remaining few pages (of one of the volumes) were got into print last autumn, and nothing appeared to stand in the way of definitive publication in October. Since then it has been found impossible, by any and every means yet employed, to obtain from Mr. Thornton the least hint of his intentions regarding the volumes, or any kind of accommodation by which the results of the foreign scholar's laborious research may be allowed to see the light." [Some statement to this effect was due to the readers of MIND, because, as far back as October, 1884, the reprints which Mr. Thornton had then announced for immediate publication (the first of them in November), were described at some length in these pages (ix. 618), from information supplied by Mr. Thornton himself.]

MSS., which he is here particular to mention in a foot-note, or given the least heed to the much more interesting and valuable copy—prefaced and dated in Hobbes's own hand—among the Hardwick MSS., on occasion of the “personal inspection”. The statement, too, is immediately followed by another remarkable assertion—that the *Elements* of 1640 was “expanded” into the *De Cive*, when the *De Cive* contains nothing in any way corresponding to the *Human Nature* part of the earlier treatise. The Reviewer is evidently all at sea over the business, and he goes finally to the bottom thus :—

P. 419: “In 1651 Hobbes translated the *De Cive* into English. The year previous, while in Paris, he divided the treatise into two portions, which he published under the titles of *Human Nature*,” &c., as before.

The old blunder about “division”—inconsistent with the other about “expansion”—is here repeated with superb aggravation. Are we not told—if words have meaning—that Hobbes translated the (Latin) *De Cive* into English one year after he had published, in English, its two halves? It would be difficult to surpass this.

There is, otherwise, a false implication (or more than one) in what the Reviewer here says of the English translation of the *De Cive* which did appear in 1651; but enough should have been said to prove that it is not this article in the *Quarterly* that should ever be consulted for the facts of Hobbes's life. Is the Reviewer, then, more trustworthy when he speaks of other people?—

P. 418 again: “In 1648, during a short stay of Descartes in Paris, Hobbes, at the Duke of Newcastle's, met that philosopher whose *Du Monde* and *Method* had already startled Europe”.

Here go two errors to one sentence. “Duke” should, of course, be “Marquis,” as he is, in fact, rightly styled some pages later; not “Duke” till after the Restoration. The other error is more serious—and significant. The Reviewer, who appears to know nothing of the greater works that Descartes had time, after the *Method* (1637), to publish some years earlier than 1648, knows, however, of a *Du Monde* that “had startled Europe” before that date. Nobody else knows anything of the kind. To be sure, in the volume under review it is stated at p. 40 that Descartes had written an exposition of his physical doctrine under that name as far back as 1633, which he then ‘kept back’ on hearing of Galileo's fate. The piece did not see the light till it was published by Cleselier in 1664, long after Descartes' death. It was a slip of mine to call it *Du Monde*; its proper title was *Le Monde*.

There are still more errors on the same page; but let us now try another some way on. On p. 429 (middle of the article) we read as follows :—“The freedom of the will is an abstract question. Hirsutius Pansa and Cicero in the pleasant woods of Puteoli, as Critias and Socrates on the banks of the Ilissus, discussed it with calm equanimity.”

“Hirsutius Pansa” is a curious designation for Cicero's neighbour Hirtius of the *De Fato* even though the poor man did soon after meet his death with his fellow-consul Pansa. And is it some other such jumble in the Reviewer's mind—say of the *Critias*, *Timæus* and *Phædrus*—that has resulted for him in the vision of that other talk by the Ilissus?

Much else might be remarked on p. 429, but pass we rather to p. 441 (last but three of the article), and so end as we began with Hobbes. Here, in a few sentences, it rains errors. Take these two at a venture: “But Wallis reserved his wrath till the Restoration, when he impeached Hobbes's loyalty, which opened the mathematical feud again. Hobbes attacked Wallis under the name of Henry Stubbe and other assumed patronymics.”

Now (1) Wallis had no wrath then to reserve; (2) it was not he that then (or earlier) first impeached Hobbes's loyalty, but Hobbes that began by insinuations against his; (3) Hobbes, and not he, reopened the mathematical feud; (4) it was reopened on quite other grounds than any question of loyalty upon either side; (5) Hobbes never attacked Wallis under the name of H. Stubbe, or other assumed patronymics; (6) H. Stubbe's actual intervention (does the Reviewer not know who Stubbe was?) in the Hobbes-Wallis controversy happened three years before the Restoration. These in themselves are no great matters; but if the Reviewer was to mention them, what need for such stress of invention? The real facts, compendiously stated for his convenience in the little book before him, might have served his turn.

Your readers have now had a surfeit of errors; but I would fain, before closing, take this opportunity of correcting one that stands in the book. On p. 213, n., C. Blount's broadside, *The Last Sayings*, &c., is described as issued 'with hostile intent' on Hobbes's death. I could explain, but can in no way excuse the 'hostile'. At most Blount was joking.

G. CROOM ROBERTSON.

So far the letter, which (after three weeks) remains without answer—as was perhaps to be expected. Here it might not be out of place to add some not less wonderful specimens of the Reviewer's philosophical manner; but, though this could be done to any length, it is not worth while. I will only remark that men like Grote, Mill and Austin might at this time of day have been spared such poor detraction as this anonymous writer has been allowed by the Editor of the *Quarterly* to attempt in their regard.

Occasion may, however, be taken to add, from another source, some matters of philosophical interest. In a detailed criticism of the little volume on Hobbes, which Dr. F. Tönnies has recently written in the *Philosophische Monatshefte* (xxiii. 5, pp. 287-306), out of the fulness of his knowledge, there is much to be learnt concerning the philosopher, if also something to be queried. I do not read the passage in the *Vitæ Auctarium*, which he refers to at p. 290, as carrying back the composition of the 'little treatise' to 1637, nor am as much inclined as he is to rely upon that authority if it did; but on the subject of Hobbes's relation to Bacon, so commonly misunderstood, he has been the first to draw attention (pp. 293-5, n.) to some passages of great interest in Thomas Sprat's *Observations on M. de Sorbière's Voyage to England written to Dr. Wren* (1665). Says Sprat (from p. 228):—"He [Sorbière] commends him [Hobbes] indeed for that upon which Mr. Hobbes lays not so much stress, for his good breeding; but he wounds him in the most dangerous place, his philosophy and his understanding. He very kindly reports of him that he is too dogmatical in his opinions, &c. . . . But, however, to comfort Mr. Hobbes for this affront, I dare assure him that, as for M. de Sorbière's part, he understands not his philosophy. Of this I will give an unanswerable testimony, and that is the resemblance that he makes of him to the Lord Verulam, between whom there is no more likeness than there was between St. George and the Waggoner. He says that Mr. Hobbes was once his amanuensis, that from thence he has retained very much of him. . . . This, sir, is his opinion: but how far from being true, let any man judge that has but tasted of their writings. I scarce know two men in the world that have more different colours of speech than these two great wits. The Lord Bacon short, allusive and abounding with metaphors. Mr. Hobbes round, close, sparing of similitudes, but ever extraordinary decent in them. The one's way of reasoning proceeds on particulars and pleasant images, only suggesting new ways of experimenting, without any pretence to the mathematics. The

other's bold, resolved, settled upon general conclusions, and in them, if we will believe his friend, dogmatical." The distinctive characteristics of the two thinkers are here, as Dr. Tönnies remarks, excellently given—in terms that might have come from Hobbes himself. I am less sure that Dr. Tönnies is right when he goes on, in the same note, to express his conviction that the words of Hobbes in the "Ep. ded." to the *De Corpore*—when, after lauding Copernicus, Galileo and Harvey, he says: "Ante hos nihil certi in physica erat praeter experimenta unicuique sua et historias naturales, si tamen et hae dicendae certae sint, quae civilibus historiis certiores non sunt"—directly point to Bacon's *Sylva Sylvarum, or a Natural History in Ten Centuries* [of Experiments], published according to him, in first Latin edition, in 1648, not long before the *De Corpore*. Leaving aside a question as to this date, and going back to the first publication in 1627, we are still left with the difficulty of understanding how Bacon's *Natural History* can be described as prior ("ante hos") to the work done by Galileo, to say nothing of Copernicus. It seems more natural to suppose that the reference is back to the ancients.

EDITOR.

THE METHOD OF MEASURING PROBABILITY AND UTILITY.

"Previous to the time of Pascal, who would have thought of measuring *doubt and belief?*" writes Jevons, contending that the measurement of utility may one day cease to be paradoxical. The analogy indicated by Jevons I have attempted to trace in a recently-published little study (mentioned above, p. 466) on the Art of Measurement, which it is the object of the following lines to describe.

One feature of resemblance between the compared sciences is that in both some of the data are apt to be very rough, more removed from the possibility of numerical precision than is usual in the Mathematical Sciences. In Probabilities, when we seek to ascend from an observed event to its cause, in the way described by Mill after Laplace (*Logic*, bk. iii., ch. 18, §§ 5, 6), there frequently occurs a constant representing "a priori probability," concerning which, as Mill says, we "cannot form any plausible conjecture, much less appreciate it numerically." The regular constructions of mathematical reasoning repose upon the loose foundations of common-sense. There is a similar mixture of materials in Economical Science. Abstract reasoning must cohere with practical wisdom.

In Probabilities it is often necessary to assume that quantities between which no inequality has obtruded itself in the course of experience may be treated as equal. Thus, in the Theory of Observations—the most triumphant application of the Calculus—it is virtually postulated that one value of the object under measurement is *a priori* as probable as another. In Utilitarian Theories, Equality is similarly postulated. The reasoning of Bentham and Prof. Sidgwick, that equality of distribution tends to maximum happiness, presupposes that the distributees are equally capable of happiness.

The Mathematical Theory of Observations is comparable with the principle of Authority in Social Science. The physicist, when there are given to him different estimates of a quantity, does not usually reject any, nor yet does he entirely accept any. He forms a Weighted Mean between the data, a combination of the evidence in which more importance is assigned to those sources of information which, in past experience, have proved more accurate. The social philosopher should proceed similarly with regard to that large portion of his subject-matter which is not amenable to Inductive Method—where we have only indistinct and fallible

perceptions of equilibrium between diverse probabilities and utilities, evidence more analogous to the physicist's 'observations' than to his reasoning.

The quantities to which the Theory of Observations is applied in Physics are times, distances, and the like. The quantities which are the objects of the analogous method in Social Science are partly indeed objective: as when we compare the opinions of authorities on Currency as to the amount of wealth likely to result from the adoption of Bimetallism. But the Utilitarian is concerned with ends as well as means. In considering, for instance, the policy of Trades-unions, he must not only estimate their effect upon wages or production, but also weigh the opinion which, according to Prof. Sidgwick, is wide-spread "among observant persons, that human beings generally have a tendency to overvalue leisure as a source of happiness". The indeterminateness which blurs our estimate of hedonic quantities may be reduced to a minimum by the combination of judgments with due regard to their weight. Prof. Sidgwick doubts "whether a mere increase of numbers of human beings, living as an average unskilled labourer lives in England, can be regarded as involving material increase in the quantum of human happiness". So the physicist may doubt whether a transit observed by him occurred at a particular time, or at an epoch earlier, say, by a tenth of a second. The error, so considerable while we rely upon a single judgment, is reduced by the combination of observations.

Thus the higher branch of Probabilities projects into the field of Social Science. Conversely, the principle of Utility is at the root of even the more objective portions of the Theory of Observations. The founders of the science, Gauss and Laplace, distinctly teach that, in measuring a physical quantity, the *quæsitum* is not so much that value which is *most probably* right, as that which may *most advantageously* be assigned—taking into account the frequency and the seriousness of the error incurred (in the long run of metretic operations) by the proposed method of reduction.

The writer has attempted, in the work referred to, to state these principles with more qualification and with greater clearness than the brevity of the present communication admits. He has aimed at portraying the philosophic aspect of the Calculus of Probabilities in a manner intelligible to the generally-educated man. The reflections, which cannot be apprehended without a technical knowledge of the Method of Least Squares, have been relegated to an Appendix.

F. Y. EDGEWORTH.

In the *Vierteljahrsschrift für wissenschaftliche Philosophie* xi. 2 (April, 1887), Dr. F. Koerber criticises Prof. Bain's views as to the mechanical correlates of mental reproductions. He agrees with Prof. Bain that the correlates of original and reproduced mental processes are, intensity apart, identical, but contends that they must be sought entirely in the brain; mental reproductions being in no way correlated with the diffusion of a current of nervous energy upon the peripheral organs. He examines in detail Prof. Bain's arguments in *The Senses and the Intellect* (3rd ed., p. 377), concluding in every case that the facts brought in support of the hypothesis of a correlation of consciousness with the whole nervous process, instead of simply with the process in the brain, admit of some other explanation. He also brings some objections against the admissibility of the hypothesis in itself. For example, he remarks that if ideas of sounds are accompanied by a return current on the organ of hearing, then, since there is a tendency to vocal and other rhythmical accompaniments of remembered tunes, the hypothesis requires that the original process of *hearing* a tune should be correlated with vocal and respiratory as well as

auditory feelings. Here he omits to note that this is the view actually taken by Prof. Bain, and that it is supported by the observations of Stricker, who, on the basis of introspection as well as of physiology, contends for exactly this active element in the perception of musical sounds.

THE ARISTOTELIAN SOCIETY FOR THE SYSTEMATIC STUDY OF PHILOSOPHY (22 Albemarle Street, W.).—The papers read since our last record have been the following:—March 7, "Lotze's Metaphysic," by Mr. A. M. Ogilvie; March 21, "Dualism in Augustin and Descartes," by Mrs. Brooksbank; April 4, "Fact and Right," by Mr. P. Daphne, LL.B.; April 18, "The Relation of Language to Thought," by Mr. F. C. Conybeare; May 2, "Hegel's *Rechtsphilosophie*," by Mr. S. Alexander, V.P.; and May 16, "The Ultimate Questions of Philosophy," by Prof. Bain. In every instance the reading of the paper was followed by a discussion. It is intended to print an *Abstract of the Society's Proceedings* during the present Session, shortly after the close of it.

Prof. Thomas Spencer Baynes of St. Andrews died very suddenly on May 30, at a friend's house in London. His health has been very uncertain for many years past, but he had struggled so manfully with the charge he undertook in 1873 of carrying through the 9th Edition of the *Encyclopædia Britannica*, that it was hoped he might, with the vigorous aid he has had of late years from a conjoint editor, have seen the end, now approaching, of that stupendous labour. Born at Wellington, Somersetshire, on March 24th, 1823, the son of a Baptist minister, he was at first destined for the pulpit, but, leaving the Baptist Bristol College and passing to Edinburgh University, he came to be chosen, from 1851, as Sir W. Hamilton's assistant in reading lectures, till the year before the disabled philosopher's death in 1856. It was while thus associated with Hamilton that he produced, in 1852, his *New Analytic of Logical Forms*, after having issued his translation of the *Port Royal Logic* in the previous year. He was also an active writer in the field of general literature (contributing especially to the *Edinburgh Guardian*). On leaving Edinburgh, he worked for seven years as assistant editor of the *Daily News*, but maintained his philosophical status, as Examiner in the University of London, and could thus in 1864 take up the function of Professor of Logic, Rhetoric and Metaphysics at St. Andrews, in succession to Spalding. Though his work from that time continued to be in great part literary, his concern for philosophy was shown by the prominence given to the subject, in all its departments, throughout the new edition of the *Encyc. Brit.* He had a character of remarkable charm, and dies regretted by an unusually wide circle of attached friends.

Brain, with Part xxxvii. (April), has become the organ of the Neurological Society of London, founded last year, and is now edited by Dr. A. de Watteville exclusively. The Part is almost wholly occupied with a long paper (pp. 89) by Dr. Bastian on "The Muscular Sense," followed by a "Discussion" (pp. 89-137). Both paper and discussion are touched upon at p. 431 above, and will be returned to later on.

Announcement has been made, since February, of the proposed issue at an early date of a quarterly journal to be entitled the *American Journal of Psychology*, under the editorship of Prof. Stanley Hall of the Johns Hopkins University of Baltimore. It will contain: (1) Original contributions of a scientific character; (2) Papers from other journals; (3) Digests and Reviews. While articles of unusual importance in the fields of logic, the history of philosophy, practical ethics and education, will be welcomed, the main object of the journal will be to record the progress of scientific psychology, and special prominence will be given to methods of research. It will be

published quarterly, and with as much regularity as the supply of material warrants. Each number will contain from 60 to 100 pages.

There is also announced, to appear at Berlin (G. Reimer), from next October, a quarterly *Archiv für Geschichte der Philosophie*. It will be edited by Dr. L. Stein, of Zürich, in association with Profs. H. Diels, W. Dilthey and E. Zeller of Berlin, and B. Erdmann of Breslau; and is meant to bring to a focus the multitude of contributions to the history of philosophy now scattered through a variety of journals philosophical and other. The first half of the new journal (extending to about 10 sheets) will consist of new communications, confined to statements of fact in briefest possible form, and written in either Latin, Italian, French or English, as alternative to German. In the second half, yearly critical reports will be given of all new publications of any kind bearing on the history of philosophy, the Editors taking each a fixed period for German productions, while Italian, French and English are left respectively to native scholars. In English, Mr. Ingram Bywater of Oxford undertakes to report on ancient, and Prof. Schurman of Cornell University, N.Y., on mediæval and modern philosophy. Co-operation has been promised by a large number of scholars in different countries.

THE JOURNAL OF SPECULATIVE PHILOSOPHY.—Vol. xx., No. 3. The Divine Pymander of Hermes Trismegistus (Reprinted from Everard's Translation, 1650). W. L. Sheldon—Agnostic Realism. K. Fischer—On Kant (trans.). Hegel—Philosophy of Religion (trans.). Goeschel—On Immortality (trans.). Notes and Discussions.

REVUE PHILOSOPHIQUE.—An. xii., No. 4. A. Penjon—Une forme nouvelle du criticisme. G. Fonsegrive—Les conséquences sociales du libre arbitre. F. Picavet—Le phénoménisme et le probabilisme dans l'école platonicienne (i.). Rev. Gén. (L. Marillier—La suggestion mentale et les actions mentales à distance). Analyses et Comptes-rendus (Travers Smith, *Man's Knowledge of Man and of God*; J. Morley, *On Compromise*, &c.). Rev. des Périod. Soc. de Psychologie physiologique (E. Gley et L. Marillier—Expériences sur le sens musculaire). Correspondance (Beaunis—Sur la spontanéité dans le somnambulisme. E. Blum—La pédagogie et l'hypnotisme). No. 5. Pierre Janet—L'anesthésie systématisée et la dissociation des phénomènes psychologiques. A. Binet—L'intensité des images mentales. F. Picavet—Le phénoménisme, &c. (fin). Variétés—L'enseignement du droit naturel au Collège de France. Analyses, &c. Rev. des Périod. Correspondance (J. Delboeuf—Réponse à M. Beaunis). Soc. de Psych. phys. (J. Héricourt—Sur un caractère différentiel des écritures). No. 6. Darlu—La liberté et le déterminisme selon M. Fouillée. B. Perez—L'âme de l'embryon et l'âme de l'enfant. F. Paulhan—L'amour du mal. Rev. Gén. (M. Vernes—Histoire et philosophie religieuses). Analyses, &c. (F. E. Abbott, *Scientific Theism*; W. P. Begg, *The Development of Taste*, &c.). Soc. de Psych. phys. (A. de Candolle—Lettres sur un projet de questionnaire d'hérédité psychologique. Ch. Richet—Expérience sur le cerveau des oiseaux).

LA CRITIQUE PHILOSOPHIQUE (Nouv. Sér.).—An. iii., No. 3. . . . C. Renouvier—L'évolutionisme chrétien (fin). L. Dauriac—De l'éducation naturelle selon H. Spencer. C. Renouvier—Sur l'activité de la matière. V. Egger—Une lettre de Bonald à Degérando; une lettre d'Ampère au même . . . Notices bibliog. No. 4. C. Renouvier—Les Dialogues de David Hume sur la religion naturelle (i.). J. Chancel—Des crimes impossibles envisagés au point de vue de la contingence et du déterminisme. R. Allier—La pédagogie sociale. L. Ménard—Leconte de Lisle. No. 5. C. Renouvier—Les Dialogues, &c. (ii.). F. Pillon—Quelques mots sur l'agnosticisme.

T. Whittaker—Un compte rendu du dernier ouvrage de M. Renouvier. F. Pillon—A propos de la classification des sciences d'Auguste Comte. Notices bibliog.

RIVISTA ITALIANA DI FILOSOFIA.—Vol. ii., Disp. 3. L. Ferri—Il monismo nella filosofia contemporanea. A. Valdarnini—Nota sulla legge suprema dell'educazione secondo Rosmini e Rayneri. R. Pasquinelli—La dottrina di Socrate in relazione alla morale ed alla politica. N. Fornelli—Il fondamento morale della pedagogia secondo Herbart e la sua scuola. Bibliografie.

RIVISTA DI FILOSOFIA SCIENTIFICA.—Vol. vi., No. 1. E. Morselli—La filosofia monistica in Italia. G. Checchia—Del metodo storico-evolutivo nella critica letteraria. Riv. Bibliog., &c. No. 2. R. Schiattarello—La formazione dell'Universo (i.). S. Corleo—Le differenze tra la filosofia dell'identità e l'odierno positivismo. Note Critiche (G. Rosa—Il Padre Eterno. R. Bobba—La jettatura secondo Democrito). Riv. Anal. Riv. Bib. (H. Maudsley, *Natural Causes*, &c.; E. B. Bax, *Handbook to the History of Philosophy*). No. 3. G. Dandolo—Il "concetto nella logica positiva". R. Schiattarello—La formazione, &c. (ii.). Note Critiche (E. Tanzi—Sulla percezione degli accordi musicali). Riv. Anal. Riv. Bib. Riv. dei Period. No. 4. G. Cantoni—Il sistema filosofico di Carlo Cattaneo. G. Cesca—Le cause finali. Riv. Sint. (G. Mazzarelli—Di alcune forme di transizione nella serie animale). Riv. Bib. (H. Sidgwick, *Outlines of the History of Ethics*; W. Knight, *Hume*, &c.). Riv. dei Period. No. 5. F. Pietropaolo—Scritti inediti di Pasquale Galluppi. P. Vecchia—L'equilibrio psico-sociologico come legge di educazione. G. Bonelli—La morale e il diritto come elementi integranti dell'organismo sociale. Riv. Bib. (D. Ferrier, *The Functions of the Brain*, &c.).

ZEITSCHRIFT FÜR PHILOSOPHIE, &c.—Since last record of this journal in MIND No. 45, Hefte 1 and 2 of Bd. xc. should have appeared, but neither has come to hand.

PHILOSOPHISCHE MONATSHEFTE.—Bd. xxiii., Heft 5, 6. P. Natorp—Ueber objective u. subjective Begründung der Erkenntniß (i.). Recensionen (G. C. Robertson, *Hobbes*; F. H. Bradley, *The Principles of Logic*; H. Spencer, *Principles of Psychology*). Litteraturbericht. Bibliog., &c. Heft 7, 8. A. Richter—Grundlegung einer Geschichte der deutschen Philosophie. Recensionen. Litteraturbericht. Bibliog., &c.

ZEITSCHRIFT FÜR VÖLKERPSYCHOLOGIE U. SPRACHWISSENSCHAFT.—Bd. xvii., Heft 2. H. Steinthal—Mythos, Märchen, Legende, Erzählung, Fabel. E. Veckenstedt—Die Farbezeichnung im *Chanson de Roland* u. in der *Nibelunge Not*. O. Kares—Die Formenverhältnisse des Wortschatzes u. die sprachlichen Baustile. R. Brandstetter—Malayische Studien. W. Lutoslawski—Ueber das phonetische Element in der Poesie. Beurteilungen.

VIERTELJAHRSSCHRIFT FÜR WISS. PHILOSOPHIE.—Bd. xi., Heft 2. F. Koerber—Bain's Ansichten über die mechanischen Correlate der Erinnerungen. E. Kröner—Gemeingefühl u. sinnliches Gefühl. J. Petzoldt—Zu R. Avenarius' Prinzip des kleinsten Kraftmasses u. zum Begriff der Philosophie. Anzeigen. Selbstanzeigen, &c.

PHILOSOPHISCHE STUDIEN.—Bd. iv., Heft 2. G. Th. Fechner—Ueber die psychischen Massprincipien u. das Weber'sche Gesetz. A. Lehmann—Ueber Photometrie mittelst rotirender Scheiben. J. Mc.K. Cattell—Psychometrische Untersuchungen (iii.). J. Merkel—Das psychophysische Grundgesetz in Bezug auf Schallstärken (Schluss). W. Wundt—Selbstbeobachtung u. innere Wahrnehmung.